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Contents

NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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Imperial Chemicals' Strong Position

LORD MELCHETT'S comprehensive statement to the third annual meeting of Imperial Chemical Industries, Ltd., on Tuesday, brought out very clearly certain points. As in his previous annual speeches from the chair, Lord Melchett re-emphasised the conservative spirit which marks the company's administration, and the policy of building up large reserves and securing stability rather than aiming at paying the highest possible dividend. The success with which this policy has been prosecuted is indicated in the total reserves of over £16,000,000 accumulated in the short term of three years, and the enormous network of operations at home and overseas already organised. Of the profits made in 1928 and 1929, over 20 per cent. has been retained in the businesss in the form of reserves. To state these and similar facts in plain terms was an indirect but perhaps the most effectual way of disposing of rumours of the kind that often float round big concerns.

As regards dividends, Lord Melchett's remarks were also on the conservative side. The deferred shares this year, it will be noted, have an increased dividend of ¼ per cent., small in itself but not unimportant as a gesture, and the figures for the year, in the chairman's judgment, might have justified an increase in the dividend on the ordinary shares. But the first aim of the Board has been to create "a strong and solid financial position," though, as the Chairman added significantly, "that is not to say that when circumstances allow and profits justify it the Board would hesitate to recommend an increased distribution to the shareholders." Those who were waiting for any "tip" as to the future found it in the Chairman's rather casual remark that the registrar's figures showed that comparatively few shares were coming on the market, and that the most natural thing for their shareholders to do was to put their certificates away and not trouble about them. The general effect of the speech was to assure the great body of shareholders present of the sound and energetic management of the huge concern, and of the success with which "effective central control" has been combined with "sufficient elasticity lower down to allow action to be neither arrested nor delayed and to prevent the chiefs at the head from being encumbered by too much detail."

Lord Melchett, in reviewing the works operations, gave some interesting information. It was notable that the first branch he selected for specific mention was the dyestuffs industry, a fact which in itself corrected an impression based on a casual remark some time ago that dyestuffs were a relatively small and unimportant field. Lord Melchett made it clear that from the national point of view, as well as from that of maintaining an efficient school of organic chemistry, the success of the British dyestuffs industry is a matter of national importance. It was with obvious gratification that he referred to Mr. Justice Maugham's recent judgment which, unless successfully appealed against, will liberate the manufacture of an important class of dyes from existing restrictions and will make clear for the future the conditions that selection patents must comply with.

The latest statistics show that the British dyestuffs industry, which was almost negligible before the war, to-day produces by weight 93 per cent., and by money value 72 per cent., of the dyestuffs consumed in this country. These figures, which are probably the very latest available, indicate the success which has been obtained since the passing of the Dyestuffs Act, and they will no doubt be used effectually in support of an appeal that the Act in some form or other shall be continued after the present year.

The further account which the speech contained of the development of the great nitrogen works at Billingham is another testimony to the extraordinary rapidity

with which this new industry has been established and expanded. When one remembers that at the end of the war the fixation of atmospheric nitrogen was a mere theory in this country and reads of the enormous output of nitrogen products already achieved at Billingham, the chairman's remark that the organisation was a model to the world does not seem exaggerated. Lord Melchett retains his full belief in the future of the nitrogen industry, notwithstanding the enormous increase in world production, and the process of establishing copies of the Billingham installations overseas is about to be applied to South Africa.

Great progress, it was satisfactory to learn, has been achieved in the conversion of coal into petrol and fuel oil by hydrogenation. A semi-technical plant is in operation and is producing first-class petrol from British coal, and Lord Melchett's prediction is that, under favourable conditions, the company will be able to produce high-class petroleum products on a commercial basis.

Sir Harry McGowan's usual detailed review of the company's operations overseas was this year unnecessary on account of the fullness of Lord Melchett's own statement, but he confirmed the announcement of a contract between I.C.I. and the Russian government and added the definite assurance that no loan had been granted to Russia, that the company's products would simply be sold on extended terms of credit, and that the contract provides for the purchase of considerable quantities of the company's manufactures at satisfactory prices. While the extended terms of credit are considered to be quite satisfactory, the company has taken the precaution of covering any possible risk by insurance.

The Chemistry of Fire-proofing

THE second report of the Fabrics Co-ordinating Research Committee (H.M. Stationery Office, pp. 180, 5s.) indicates a distinct advance of knowledge as the result of experiments undertaken with a view to discovering an efficient method of fire-proofing fabrics, and the full review of the research is well worth study from the chemical point of view. Both boric acid and borax have hitherto been regarded as efficient fireproofers, and many mixtures of these with other substances have been patented. One process appears in the literature in which a solution of 6 parts borax and 5 parts boric acid neutral to phenol phthalein is advocated. Little information was available, however, as to the relative efficiency, general properties, and mode of action of boric acid, borax and mixtures containing these substances. In the course of an investigation on binary mixtures it was found that whereas borax prevents flame propagation only when present in amounts approximating to 60 per cent. of the weight of the fabric and boric acid is ineffective even with 90 per cent., 10 per cent. of a mixture of both substances in equal parts was found to be sufficient. Further investigation of the behaviour of mixtures containing different proportions of the two compounds showed that with a mixture containing 30 per cent. of boric acid and 70 per cent. of borax the addition of 6 per cent. by weight to a 4 oz. cotton fabric was sufficient to prevent propagation of flame. As explained in detail in an appendix, the mixture has, in other respects, important advantages such as cheapness, the absence of any marked deteriorating effect on the fabric both during storage and on exposure to sunlight, and the retention by the fabric of its softness and flexibility. Further, the mixture does not serve to promote the growth of destructive micro-organisms. The Committee are therefore in a position to recommend the use of this mixture for purposes where the use of a " soluble " fireproofing agent (one that would be removed by contact with water) is permissible. In the course of further work, attention will be given to the possibility of developing a " permanent " treatment, that is, treatment that is not rendered ineffective by the action of water.

Books Received

BRITISH CHEMICAL ABSTRACTS INDEX, 1929. London: The Bureau of Chemical Abstracts. Pp. 638.

TABLE CONVERTING ENGLISH WEIGHTS TO KILOS AND VICE VERSA. London: Davidson, Park and Speed, Ltd. Pp. 32. 6d.

The Calendar

May		
5	Institution of the Rubber Industry (London Section): "Some New Developments in the Physical Testing of Rubber." Dr. A. A. Somerville. 7.30 p.m.	Institution of Mechanical Engineers, Storey's Gate, London.
5	Society of Chemical Industry (London Section): "Observations on the Condensations between Formaldehyde and Aromatic Compounds." Professor G. T. Morgan. 8 p.m.	Burlington House, Piccadilly, London.
7	Society of Public Analysts. 8 p.m.	Burlington House, London.
7	Institute of Metals. Annual May Lecture. "The Influence of Technique on Research." Major F. A. Freeth. 8 p.m.	Institution of Mechanical Engineers, Storey's Gate, London.
8	Chemical Society. Faraday Lecture: "Chemistry and the Quantum Theory." Professor Dr. Niels Bohr. 5.30 p.m.	Salters' Hall, St. Swithin's Lane, London.
8	Optical Society. 7.30 p.m.	Imperial College of Science and Technology, London.
8	Oil and Colour Chemists' Association. Annual General Meeting. "Some Technical Methods of Preparing Wood Oil for Use in Paints and Varnishes." A. W. C. Harrison. 7.30 p.m.	30, Russell Square, London.
9	Chemical Engineering Group. Annual General Meeting and Dinner.	Criterion Restaurant, London.
9	Royal Society of Arts: "Report of the Royal Commission on Indian Agriculture." Dr. D. Clouston. 4.30 p.m.	John Street, Adelphi, London.
12	Chemical Industry Club: "Waves and Quanta." Dr. H. Moore. 8 p.m.	2, Whitehall Court, London.
13	Institution of Petroleum Technologists. 5.30 p.m.	John Street, Adelphi, London.
14	Society of Chemical Industry (Newcastle Section): "Cenospheres and the Structure of Coke." Dr. F. S. Sinnatt.	Armstrong College, Newcastle-on-Tyne.
15	Chemical Society. 8 p.m.	Burlington House.
16	Institute of Chemistry (Belfast Section): Annual General Meeting.	Royal Belfast Academical Institution.
23-24	Institute of Chemistry and Society of Chemical Industry (Edinburgh Sections): "Chemistry in Naval Warfare." Professor Kendall.	Edinburgh.

Unemployment and Work

By Sir Ernest J. P. Benn

This is the first of a series of ten articles by Sir Ernest Benn, Chairman of Benn Brothers, Ltd., and the author of the widely-read volume "The Confessions of a Capitalist," on the general problem of "Unemployment and Work." The introductory article deals specifically with "The plight of the unemployed." In the remaining articles, which will appear weekly in "The Chemical Age," the subject will be comprehensively treated from various points of view.

I.—The Plight of the Unemployed

If there were a rule which made it necessary to define one's terms before opening a discussion, a large proportion of discussion itself would automatically disappear. It happens all too often that parties to a debate are talking all the time about totally different things, and then they wonder at their failure to arrive at a common conclusion. The word Unemployment, as it is used to-day, has two distinct and very different meanings. I propose to discuss the term in both its senses, but I shall try to exercise care to discriminate between them. In its older sense, the word denotes the condition of a man or woman for whom no work exists, but its later meaning covers the case of a person who by any one of numerous ways has contrived to get his or her name entered upon the register of a Labour Exchange. There is a vast difference between the two, and inside these extremes there are numerous smaller grades of difference.

It is hard to imagine a more terrible plight than that of the man with a wife and family, who, being able and willing to work, through no fault of his own is yet unable to find any sort of remunerative employment. Most of us are completely unable to realise the frightfulness of such a position, and nothing that I shall say must be taken to indicate a lack of appreciation of its inhuman horrors. On the other hand, to approach the problem except in a critical and scientific spirit is to do it less than justice. Sentiment is dangerous stuff when the need is for a surgical operation. In so far as there is a real absence of work, it is a grave public scandal and one which the Government may very properly be asked to remove. But note the terms of our definition and see how seriously they reduce the area of discussion. "Able and willing," "no fault of his own," "unable to find any sort of employment." No statistics are available, but I should be surprised to know that there were 200,000 men and women who, on a strict interpretation of this definition, could be properly described as Unemployed.

The Problem Affecting 200,000 Persons

It is a comparatively simple matter for the nation with all its resources to deal with a problem affecting 200,000 persons, but we have now made the matter anything but simple by adding seven times as many other people who are without work for other reasons and treating them all alike as if they were all unemployed in the old sense of the term. If we go on as at present we shall presently have to face the problem of two million people (five per cent. of the whole population), who, because they happen to be standing in the same queue outside the labour Exchange, are assumed, quite wrongly, to be of the same class and to be suffering from the same trouble. Parliament is pursuing two very different objects at the same time. The first is to help the man for whom no work exists, and the second to multiply benefits for all those who are not considered to be well enough off.

The awful plight of the real unemployed man is intensified by this confusion. Many people who are genuinely anxious to help him are prevented because they cannot approve of the wholesale distribution of new benefits which the nation cannot, at present, afford. Let me give an illustration—a very extreme one. The other day a young woman, who had worked for six months in a small business, asked her employer to sack her and to take in her place a younger sister who was helping mother at home. The girl explained that her sister did not care for housework, while she herself was tired of factory work. A change over would suit them both, and have the additional advantage of insurance benefit to the new domestic help.

The employer obliged. It was probably very wrong of him to do so, but he argued that since he always arranged his own affairs to get what benefits he could from the technicalities of taxation, the girl was equally entitled to arrange her affairs with a view to enjoying benefits offered by the State. In this way one more person was added to what are called the unemployed.

We shall never be able to do justice to any of these people until we sort them out into categories. Meanwhile, the piling up of the figures by reducing ages, extending benefits, shortening periods and other similar devices, is pushing further and further into the background the unfortunate people on whose backs and in whose name all these new beneficiaries are getting themselves entered on the public pay-roll.

Instead of helping the genuine unemployed man, most of the things we are doing to-day are, by widening the area of operations, decreasing what little chance he may have of a permanent improvement in his position.

It is very necessary that we should in so grave a matter take only such steps as are founded upon sound principles or reliable experience. In particular, every new proposal should be carefully examined to see whether it arises from a genuine interest in the unemployed or from a desire to promote some political interest. For example. Some people look forward to what they regard as an ideal when the State shall be the only employer of labour. Every name entered upon an unemployment register and every dole handed out by the Minister of Labour brings us a little nearer to that position. It may be observed, without throwing accusations at anybody, that people who hold these views are subject to the disturbing mental play of two opposing loyalties. If they reduce the unemployed and push people back into private service, they are delaying the arrival of their particular millenium. Unless, therefore, we also believe in the idea of universal State employment we are doing no service to the unemployed by leaving their interests in the hands of this sort of thinker. The same sort of argument can also be used with justice not only against the Socialists, but against every political party.

A Party Asset

Unemployment as a party asset is one of the most disgusting of the many degrading features of modern politics. There are grounds for the hope that we have touched bottom in this beastly business. Every political party has its unemployment policy, and now even the unemployed are beginning to see the worthlessness of all these plans. When the truth dawns, then the first big step will have been taken towards better things and better times. But the plight of the unemployed will not be altogether ended when politicians have found something else to do. We shall then have to get rid of the helpless political mentality represented by the phrase "through no fault of his own." In modern politics, no seeker after suffrages ever tells any electors that there is anything wrong with them. The fault is always with somebody else, some other class, and must be remedied at the expense of those others. This universal pose will not appeal to our sensible people when we pass out of the present post-war slough of political despondency.

There will arise a new class of politician making an appeal to our better selves and flattering us by an honest emphasis on our shortcomings. When we begin to get it into our heads that it is possible for a man to be out of work from his own fault, then another big step towards the end of our plight will have been taken. Then, as a further step towards economic health, we may begin to look round to find whether we are putting any unnecessary obstacles in the way of employment. We shall begin to see that the removal of obstacles is better than the provision of new forms of relief.

Permission to Work

Very few of us realise how difficult we have made it for a man to secure "permission" to work. There are numerous occasions when an unemployed man is willing to work, a customer is waiting for something to be done, and somebody else steps in and says "No." Many of these arrangements may be very wise, others may be merely unnecessary, and others again may be simply foolish. But all of them must be gall and wormwood to the able-bodied man anxious and willing to work and condemned by them to the degradation of the

dole. It should never be forgotten that so long as there is a want in the world there is work to be done, and that unemployment is an unnatural disease due to unnatural conditions. In medicine, it is recognised that prevention is better than cure, but in politics, with its quack remedies, prevention is not popular. Very little attention is, therefore, given to the creation of conditions which would make for prosperity, and most of our efforts are directed to the sale of party nostrums for economic complaints.

One or two very simple illustrations will suffice to indicate what big opportunities present themselves to those who would remove barriers to work.

If I want a box of chocolates for my children after the legal hour, the law says "No." In that way a certain amount of unemployment is created among chocolate makers. I do not desire to discuss the merits or demerits of this particular sample of modern grandmotherly legislation. It is one of thousands of similar restrictions. There may be weighty reasons of State that make it necessary for my children to go without chocolates. From my point of view it is certainly better for the children, but let us understand quite clearly that we are reaping the benefits, whatever they are, of this particular Act of Parliament at the expense of some unfortunate unemployed person.

The Statute Book is bulging with this sort of thing. Parliament has passed an average of two Acts a week, a hundred a year, ever since the century opened, and, in my lifetime, 5,000 Acts have received the Royal Assent, each of them restricting the activities of somebody or some trade, and each of them making its quota of unemployment and thus keeping the general level of wages down.

Most of the building work of the moment is delayed weeks and months by the new formalities of the Town Planning Acts. Delay is definite and permanent loss to a man seeking work. Again, I am not arguing the case for or against town planning, but I question whether those who advocate this further development of bureaucratic supervision have given adequate consideration to its effect upon the employment question. A political party that would undertake to repeal a thousand Acts of Parliament which have been proved to be merely useless obstructions, would solve unemployment and restore the nations' prosperity. Committees of enquiry are the fashion. Can we not have an enquiry into obstructive and obsolete legislation?

Restraint of Trade

The subject of barriers to employment leads us on to all those trade union arrangements which, while they may bring temporary benefit to those actually in work, bar the prospects of the man in search of employment. If, as is undoubtedly sometimes the case, these union rules and regulations enhance the cost of goods and limit the demand for them, then a further section of our unemployment is explained. There is, in addition, a vast quantity of rules and regulations contrived by employers' and merchants' federations having in them, no doubt, some benefit for those inside the ring, but, in so far as they limit markets, they also are responsible for some part of our problem.

We are living in an era when the practice of restraining trade has become a fine art. Anyone who would understand from personal experience how far this sort of thing has gone can easily make a practical experiment for himself. Let him make the endeavour to buy and sell a ton of coal, a hundredweight of seed potatoes, a gallon of milk, or twenty-five copies of a popular novel. The barriers that stand in his way may give him a fresh understanding of some of the difficulties of the unemployed.

Far East Petrol Prices

IT is reported from New York that the price war in the Far East between the Royal Dutch Co. and the Standard Oil Co. of New York has been ended. The price war, it is stated, has been settled with an advance in prices of 100 per cent. An increase of 8 cents per gallon on petrol has been made, thus placing the prices both in the Dutch East Indies and the Orient at a level equivalent to those obtaining in the United States plus transport charges. This increase, it is added, follows the principle adopted in England a year ago. It is believed that the settlement is the result of Sir Henri Deterding's recent visit to New York, when he discussed the petrol situation in the Far East

Oil and Colour Chemists

Annual Dinner in London

DR. J. J. FOX (president) presided over the annual dinner of the Oil and Colour Chemists Association, held at the Connaught Rooms, London, on Monday evening.

In proposing the toast of "The Oil and Colour Chemists Association," Mr. J. Arthur Reavell (president of the Institution of Chemical Engineers), said it was a wise provision in the rules of the Association which enabled it to admit to membership all who were in any way interested in the subject of oil and colour, whether chemists or not. It was natural for all those who had specialised to come together into an association, and now, if they had not an oil and colour association in existence, it would be necessary to form one at once. To-day we were up against the scientists of the whole world, and we were in effect entering on a new war, in which association and unity of effort would be required. Besides the strength which came from the wide basis of the membership of the Oil and Colour Chemists' Association, an additional advantage was that it avoided the overlapping of kindred societies. It had been the custom in pre-war times to worship the foreigner, particularly in the matter of chemistry. For his advocacy of things British, said Mr. Reavell, he had been depicted waving a Union Jack, and he was proud of it. To-day we had as good chemists in this country as could be produced anywhere else in the world. (Applause.) In conclusion he suggested that they might even change the name of the Association from Oil and Colour Chemists' to just Oil and Colour. For success in the markets of the world to-day they had to include everybody possible in the ambit of the Association.

The toast was coupled with the name of the president, and Dr. J. J. Fox, in his response, remarked that the Association had had a most successful year. It was not the preserve of chemists, and at least one half of the papers read during the year were not chemical. He referred to the activity of their lively Manchester branch.

Limits of Modern Amalgamation

Mr. G. A. le M. Mander, M.P., who also responded, spoke of modern amalgamations. Provided they went no further than they had gone at present, he said, no harm would be done, but the real amalgamation needed was that between knowledge and power, not only in the paint and varnish world, but throughout industry. He wished his hearers success both as individuals and in the great task they had undertaken for the national interest.

The toast of "The Guests" was proposed by Dr. L. A. Jordan, who gave an account of his scientific associations with some of the eminent chemists who had accepted invitations to be present at the dinner, and besides the speakers included Dr. G. C. Clayton (President of the Institute of Chemistry), Mr. Edward Hinks (President of the Society of Public Analysts), Mr. S. K. Thornley (President of the Research Association of British Paint, Colour and Varnish Manufacturers), and Mr. A. H. Davis (President of the National Federation of Associated Paint, Colour and Varnish Manufacturers). Professor J. F. Thorpe (President of the Chemical Society), Dr. Jordan announced, was unable to attend owing to an accident.

In responding, Sir Robert Robertson paid a tribute to the enthusiasm of Dr. Fox in the work of the Association; and Lieut.-General Sir William Furse, Director of the Imperial Institute, referred to the large amount of co-operation he had received in industrial research work, particularly from those who were extremely busy men.

All the speeches were kept very brief—they were, as General Furse humorously remarked, the shortest speeches he had ever had the pleasure of listening to. The remainder of the evening was given over to dancing.

Among others present besides those mentioned were Lady Robertson, Mrs. Fox, Miss Fox, Mr. and Mrs. G. Stubbs, Mr. and Mrs. R. B. Pilcher, Mr. T. H. Bridge, and Mr. and Mrs. J. H. Aiken.

Ethyl Petrol Sales in U.S.

THE Sales of ethyl petrol in Canada and the United States during the past two years have increased from 400,000,000 gallons (in 1927) to 1,250,000,000 gallons (in 1929). If present figures are maintained the sales this year are likely to total 2,000,000,000 gallons.

The British Association of Chemists

Action in Relation to Alien Chemists

THE twelfth annual general meeting of the London Section of the British Association of Chemists was held in London on Friday, April 25, Mr. W. H. Woodcock (chairman of the Section) presiding.

The Annual Report

The annual report of the Hon. Secretary (Dr. W. R. Harris) reflected the very satisfactory progress of the Section during the past twelve months; the Section has gone forward with leaps and bounds. Especially was this progress exemplified by the increase of membership of the Section, to the extent of 25 per cent. during the past three years, and this was attributed mainly to the activities of individual members. At present there were 369 full members, 80 probationers and 19 students, making a total of 468, which compared with 408 in 1929 and 366 in 1928. The report was adopted, and a hearty vote of thanks accorded Dr. Harris for his services as hon. secretary. Owing to pressure of other business, Dr. Harris has resigned this post, but has been prevailed upon to continue his services as Membership Secretary.

The Chairman, in a brief address to the members, commented with satisfaction upon the growth of the Association and its increasing influence. With its present membership of well over 1,000, he said, the Association could do great things, but with increased membership it could do still greater things. As an instance of its growing influence, he said that the Association was being recognised as of sufficient standing to warrant its being asked to assist in the work of various bodies concerned with chemical matters. For example, the British Engineering Standards Association had asked the Association, in common with other bodies, such as the Institute of Chemistry, the Institution of Civil Engineers, the Institution of Mechanical Engineers, and so on, to appoint representatives on its committees; the Association had been asked to appoint a representative to the new Committee which was being formed to define and standardise means of chemical analysis.

Election of Officers

The following were elected for the ensuing year:—Chairman, Mr. W. H. Woodcock; Hon. Treasurer, Mr. H. M. Morgan; Hon. Secretary, Miss W. Wright; Membership Secretary, Dr. W. R. Harris; Entertainments Committee Secretary, Mr. P. E. L. Farina.

The following were elected to fill vacancies on the Committee:—Professor G. T. Morgan, Dr. Paul Haas, Mr. J. P. Harrison, Mr. J. C. Mellersh, Mr. A. J. C. Cosbie and Captain V. M. Weall.

Work of the Association

Mr. C. B. Woodley (general secretary), in a statement concerning the work of the Association, dealt with a recently introduced system by which local officials or "consuls" have been appointed to assist in the work of increasing membership. These are appointed as representatives in the outlying districts, their duties being to follow up the inquiries of candidates for membership and to render help and advice. The London Section has nominated Mr. A. J. Baker as consul in the Eastern District of London, Mr. William Johnson for the Slough and South-Western District, and Mr. H. L. Howard for the Woolwich and South-Eastern District.

Dealing with the activities of the Association in finding posts for English chemists, Mr. Woodley said that the Association was doing considerable service to chemists by finding competent men to fill posts which had been held hitherto by aliens. Its work with the Ministry of Labour resulted in special opportunities being brought forward at very short notice for British chemists; these were usually specialist posts, and it was sometimes difficult to fill them quickly. During the past month, he said, he had received an inquiry for a chemist having specialised knowledge. The employers concerned had an alien in mind, and, as was often the case, seemed to think that aliens were the only people who could do the job. It was the usual practice, when aliens were employed, for the Ministry to stipulate that the employer must also employ a British chemist to study under the alien, since the latter was permitted to stay in this country for only a specified time. In a case he had in mind it had been found that a British chemist had not been appointed, and the employers had been told that the alien's permission to stay here would be rescinded unless a British chemist was appointed immediately. So far as he knew, that particular alien had had to go back to his own country. In another case a chemist was wanted for some work in connection with Portland cement. The employer had said he had interviewed all the available men in this country, but none of them were so good as the alien whom he had proposed to employ. The Association, however, had convinced the employer that it could provide a chemist able to do the work, and a chemist introduced to the employer by the Association had obtained the situation at a salary which was £200 per annum more than that which the alien had been willing to accept.

Mr. Woodley added that British manufacturers had been so successful that, whereas they had previously imported certain products from abroad, foreign works previously supplying such products were now being closed and British manufacturers were exporting them to the Continent. This proved, he said, that the British chemist was superior in efficiency to the Continental worker, and it was also a reason why so many foreign chemists were trying to get into this country.

Legal Aid

Respecting the work of the Legal Aid Department, it was pointed out that, since the work was, in the majority of cases, confidential—far more cases being settled out of Court than through the Courts—the details of the work and the valuable results obtained seldom reached the stage of publication. The Unemployment Special Purposes Committee had always urged all members, whatever their status, to submit their service contracts to the Legal Aid Department for opinion, and, if it were necessary, the solicitor of the Association was requested to advise thereon. Agreements had been submitted which covered a lot of paper with numerous clauses, but so drafted that they were completely contradictory and useless as regards any protection to the members concerned. In other cases the terms were unnecessarily harsh or onerous or so vague that they might be interpreted variously by the employer and the employee, and so lead to friction. It was emphasised that agreements in cases where chemists were proceeding abroad should always receive very careful attention, and should provide for the repatriation of the employees. A number of instances were referred to in which, as the result of the Association's help, differences between members and their employers had been settled equitably.

The Chairman, referring to the proposals made by employers to engage aliens, said that in every case, without exception, when the Association had got down to rock bottom, the reason had been that of salary. The B.A.C. was the only chemical organisation which could deal with salaries, and it was of the utmost importance that it should fight against the importation of alien chemists.

Mr. McLachlan (a member) said he understood that if an employee contemplated taking action in a Court of law, the average advice was that, although he might win his case, he would get such a reputation that he would not be likely to obtain another appointment. He asked if there was any truth in that, and whether an employee was likely to be blackballed as the result of having taken legal action, even though justified.

Mr. Woodley replied that he could not recall a case in which a member had had difficulty or had been blackballed by taking legal action; the employers looked upon such matters as purely commercial transactions.

Mr. J. B. P. Harrison (Vice-President of the Association, and Chairman of the Unemployment Special Purposes Committee) gave some particulars concerning the activities of the Association's Unemployment Benefit Fund, which was in a most satisfactory position.

Annual Meeting of Imperial Chemical Industries

Lord Melchett's Review of Company's Position

The feature of the third annual general meeting of Imperial Chemical Industries, Ltd., held in London on Tuesday, was the comprehensive review of the company's operations by the Chairman (Lord Melchett). Of particular interest from the technical side were his references to the dyestuffs position, the operations at the Billingham works, including the hydrogenation process, and the installation of plants in South Africa.

LORD MELCHETT, in moving the adoption of the report and accounts, said :—

The gross profit for 1929 amounts to £6,502,341, which is an increase of £504,960 over 1928 and of £1,168,417 over 1927. Your directors now recommend a final dividend of 5 per cent. actual, making 8 per cent. for the year on the ordinary shares, and a dividend of 2 per cent. on the deferred shares.

Position of the Company

The balance sheet reveals a position of strength and solidity of which any company in any country might well be proud.

Only in existence for three years, during a time of exceptional industrial and trade difficulty, we have shown continuous growth of profits—profits which, I may say, are the result of the manufacture and sale of our products, the legitimate business on which we are embarked, profits which have been obtained in a time of gradually diminishing world prices and relatively non-elastic and slow-moving markets both at home and abroad.

To have achieved in three years a reserve and obsolescence fund of £16,725,000 is a feat of which we can be proud. We all realise the rights of those participating in industrial ventures to obtain during their lifetime as good a return on their capital as the industry can afford. But I hope you will agree with me that you do not wish us to be precipitate in our action, to adopt a dividend rate the maintenance of which we cannot really foresee, not merely for one year but for some time ahead.

It is quite impossible in industry to-day to divorce entirely the effect of economic actions undertaken by Governments from the conduct of business affairs. Neither technology and efficiency nor commercial ability and sagacity can counteract the disastrous economic results which may, and do, arise from unwise actions of Governments. I have no hesitation in saying that if you wish to restore the agricultural and industrial condition of this country to a real state of prosperity, one of the first necessities must be reduction of the burden of direct taxation. When out of every pound you put by in your reserve fund from your profits year by year for the building up of your business, 4s. 6d. is taken by the State—often for by no means so useful a purpose—how can anyone say that taxation does not impair the strength of industry? There never was a period in the world's business history in which it was more necessary to enable large decisions to be taken rapidly. Time most frequently is of the utmost importance. "Yes" or "No" must be given at once. And on these occasions the groups of far-sighted and powerful men who are prepared to risk a very considerable part of their fortunes, and who will be inclined to ask shareholders to do likewise, are an essential necessity to our modern economic life. That you can destroy with impunity the existence of such people or substitute any other form of machinery to fulfil their rôle is one of the most dangerous heresies and fallacies of a certain class of economic thought.

Dyestuffs

Our dye industry becomes of special interest as the Dyestuffs Act, which was passed in December, 1920, and under which the British Dyestuffs Corporation was originally founded, expires in January, 1931, unless by the intervention of Parliament new legislation is passed. It is not surprising that the first years of this Company were years of difficulty and disappointment. In fact, it can be more accurately described as a national work rather than a remunerative commercial industrial enterprise. As you know, we have only had three years in which to tackle all the various problems connected with this enterprise. I am glad to think that during that period we have made an altogether surprising amount of progress, more especially in the last two years. The range of dyes required for the various purposes of modern industry is enormous. There are over 10,000 separate dyestuffs known, and while a great many are redundant this figure serves to show the complexity of the industry. We are to-day manufacturing and even exporting dyes of a quality equal to those made by any other firm in the world, and no customer of ours has any longer any reason to complain, as undoubtedly was the case in the earlier days, regarding quality. We have reduced prices to figures which enable the English consumer to obtain his products at world prices. In our view, the results obtained so far entirely justify the passing of the Act. The British dye industry to-day produces by weight 93 per cent. and by money value 72 per cent. of the dyestuffs consumed in this country. Before the war the industry was practically negligible, but there are now several millions of pounds of capital invested in the industry, which employs many thousands of people directly and indirectly. We think the period has been too short to enable us to catch up the long start our competitors have had, but we feel certain that within a given time we shall arrive, at any rate, at an equality, if we do not surpass them.

The Billingham Programme

We have almost reached the completion of our expenditure on our fertiliser and ancillary plant at Billingham. It is, of course, public knowledge that the whole of this plant is not in full operation. We have never expected that all the fertiliser plant we were erecting would be required immediately on completion of the plant. Owing to the rapidity of construction the date of our original programme has been considerably anticipated, and in view of extensive technical improvements the capacities of the various fertiliser plants are all considerably higher than the original estimates and the amount of surplus of each plant at the moment is larger than it would otherwise have been.

In order to maintain our relative position and importance as manufacturers we shall always in the future, as we have throughout our history in the past, have to be prepared to have a certain amount of reserve plant in existence. We can never afford not to be able to deliver when the market calls for our products. Neither is it possible with the most careful economic and statistical study to foretell with accuracy more than the trend over periods of the world consumption. During the past seven years world nitrogen consumption has more than doubled. We can, however, from past experience state with certainty that there is still a great world need for the increased use of fertilisers. There have been sudden and large increases in the demand for nitrogen in recent years, and I fully expect that history will repeat itself in this respect.

Developments in South Africa

One of the main objects of my recent visit to South Africa was to obtain a personal acquaintance with the working of African Explosives and Industries, Ltd., a very important associated company of ours in which we have a 50 per cent. interest in conjunction with the De Beers Co., and I was very pleased with the present position and future prospects of the company. As you will know, I personally am absolutely convinced of the importance of the development of Imperial economic unity, not merely to relieve the industrial depression of this country, but also to assist the agricultural and general development of the Empire as a whole.

My visit to South Africa has only tended to confirm my previous view. There and throughout the Empire you see the enormously wide field that lies open to trade agreements between the British producer and the British manufacturer.

We have given a great example of the advantages of industrial mergers. I can assure you that I am absolutely convinced that even much greater and more far-reaching advantages to the British people could be derived by co-operation on the lines of an Imperial merger.

One of the schemes which was discussed in South Africa was the introduction into that country of our processes for the manufacture of synthetic ammonia and its oxidation into nitric acid for the cheapening of the manufacture of explosives.

Owing to our interest and connections with this great industry in South Africa we are able at the same time to exploit on remunerative terms to your company the result of the years of research and experiment we have carried out at your Billingham factory, and at the same time assist in the development of an important secondary industry in the Dominions which will render South Africa, which up to now has had to import Chilean nitrate of soda for the manufacture of nitric acid, a self-contained unit as far as this operation is concerned.

In general, I would say that I feel confident that this company, which is in an extraordinarily strong position, will continue to extend very largely its operations in many directions and become a still larger contributor to the profits of I.C.I. as compared with what it has been during the last few years.

Oil from Coal

We have made great progress in the important field of the conversion of coal into petrol and fuel oil by hydrogenation. A semi-technical plant is in operation, and is to-day producing first-class petrol from British coal. We are doing intensive work on the subject, studying it particularly in this country and in other parts of the Empire, and we have every reason to hope that, under favourable conditions, we shall be able to produce high-class petroleum products on a commercial basis. We have recently had discussions with representatives of an important group of oil companies and the Standard I.G. Co. of America with a view to arranging for mutual co-operation and the pooling of knowledge, and for exploitation of the process on lines which will encourage mutual progress. I am happy to say that within the last day or two we have practically reached an agreement on the points involved, and we have no doubt that this agreement will be of material benefit to us and facilitate early practical progress not only in this country but in the Empire as a whole. I need hardly point out the importance of these developments both in national and imperial defence and the future development of the coal industry in this country. They would carry with them, directly and indirectly, a large amount of new employment of workers in this country. On looking at the situation as a whole I can only repeat that we have every reason to be satisfied with the position the company has reached in such a short space of time and has maintained during the years of exceptional industrial and financial difficulties.

The balance sheet discloses a powerful financial position. As far as we can judge our capital requirements for the present year, and probably for longer, are covered by the last issue which we have made.

Current Year's Prospects

While it is early in the year to endeavour to anticipate the final results, and whereas it is always an unthankful task to assume the rôle of a prophet, especially in times such as these, still, giving you the best views on the position which I can make at the present time, I see no reason to anticipate that the present year should not give us results as favourable, if not somewhat better than those of the year whose accounts we are presenting to-day. Those who are partners with us in this great Imperial enterprise, and on whose loyalty and support we have to rely, can rest assured that there is nothing which will not be done, which foresight, energy and application can humanly do, to develop still further this great concern. There is, fortunately, throughout the entire ranks of our body a unity of purpose, a common loyalty, and harmonious co-operation which will become intensified as time goes on. Surrounded as I am by colleagues of exceptional and established ability, by a staff of the highest grade of efficiency, by a band of workers unequalled in the world, I look forward with no uncertainty or hesitation to the growing expansion, the increasing prosperity of, at any rate, one great British industry of which I have the honour to be the chief.

The Russian Contract

Sir Harry MaGowan, in seconding the resolution, said: I commend the enterprise of our staff in continuously looking for new outlets for our products. The day is past when we can sit at home and wait for orders to come to us. Members of our staff are all the time travelling the world, getting in contact with existing and potential buyers, and I can assure you that no stone is left unturned in our efforts to hold and increase our business.

Publicity has been given in many newspapers to the contract we have made with the Russian Government, but I would like to remove what is, possibly, a misconception in the minds of our shareholders. It has been stated in one or two papers that we have given a loan to the Russian Government. That is not so. What we have done is to sell our products on extended terms of credit, which, however, in our opinion, are quite satisfactory, but any possible risk is adequately covered by insurance.

The resolution was carried unanimously.

Re-election of Directors

The chairman then moved that Lord Ashfield of Southwell, Dr. G. C. Clayton, Dr. W. H. Coates, the Marquis of Reading, Mr. J. Rogers, Mr. B. E. Todhunter, and Lord Weir, the retiring directors, be re-elected.

Lord Colwyn seconded the resolution, and it was unanimously approved.

Alderman Mack moved the reappointment of Thomson McLintock and Co. and Price, Waterhouse and Co., as auditors to the company for the year 1930.

Mr. P. W. Marshall seconded the motion, and it was carried unanimously.

Mr. W. H. S. Oulton said that he was sure that the shareholders would not like to depart without thanking the chairman for presiding over the meeting. They thanked him for the very clear and lucid statement which he had made to them, and they also thanked him for looking after their great concern and ensuring not only its safety but its prosperity during the last year. They hoped that during the coming twelve months he would enjoy both health and happiness, and, with that, the company as great, if not greater, prosperity. (cheers.)

Mr. James Cockburn seconded the vote, which was accorded with acclamation.

Big Nitrate Merger

Chilean Government to Participate

As a result of the Paris conference of nitrate interests, it is reported, proposals have now been definitely drawn up for the formation of a £75,000,000 company to take over all the nitrate fields of Chile and bring the whole industry together in one organisation. Of the capital of the company, half will be issued to the Chilean Government in return for the cession to the company of all the "undeveloped" nitrate fields, and the remission of the present export tax of £2 10s. per ton. The remaining half will be issued to the present nitrate-producing companies through a share exchange.

When the merger is effected, the small and uneconomic oficinas will be closed down, and the company will concentrate upon the large and efficient units. These will be brought to the highest possible state of efficiency, and it is expected that the benefits of centralisation will be very great. In addition, new oficinas will be constructed, more especially in the most economic and productive of the undeveloped nitrate grounds.

Chile has suffered so much from competition with the synthetic producers that her contribution to the world-total fell from 35 per cent. in 1925 to 22 per cent. last year, but it is considered that the lower production costs will bring about an enormous improvement of the position. Recently some experts have calculated that, after the removal of the export duty of £2 10s. per ton, a further reduction in costs of only 15s. to £1 per ton would enable them to market their product at a lower price than could prove remunerative to the synthetic producers.

Chilean Nitrate Production

ANGLO-SOUTH AMERICAN BANK advices from Valparaiso give reported production and total exports of Chilean nitrate during the period July, 1929, to February, 1930, in metric quintals as follows (with the comparisons with the corresponding period):—

	1929–30.	1928–29.
Production	21,296,293	21,916,862
Exports	17,946,017	21,618,787

Of the total amount exported during the period July-February, 1930, 11,441,887 metric quintals were dispatched to Europe and Egypt, while 5,381,731 metric quintals were shipped to the United States (including Hawaii), and 1,122,389 metric quintals to various other countries.

Chemistry and Chemotherapy of Iodine and Its Derivatives

III.—By G. Malcolm Dyson, Ph.D., A.I.C.

We publish this week the third and concluding instalment of Dr. Dyson's article on the chemotherapeutic properties of iodine. Previous instalments appeared in "The Chemical Age" of April 19 and 26.

Iodoform

Iodoform may be manufactured by the action of iodine and alkali on either alcohol or acetone. In the case of the latter the following method is available :—The iodine (100 lb.) is dissolved by vigorous stirring in 10 per cent. caustic soda solution (32 gall.) and acetone added (2 gall.) followed by a further addition of iodine (200 lb.). On stirring and warming the liquid, iodoform separates out and may be filtered off, washed and dried.

When alcohol is used as the raw material it is preferable to use potassium carbonate as the alkali. This substance (32 lb.) is dissolved in warm water (8 gall.) and treated with alcohol (1¾ gall.). The iodine is then added in small portions with much stirring. The iodoform separates slowly, and may be filtered off after standing 24 hours. The filtrate contains much iodine, and may be worked up by the addition of potassium bichromate (2–3 lb.) and concentrated hydrochloric acid. The solution is neutralised with potassium carbonate and treated with more alcohol.

The smell of iodoform being objectionable, it has been proposed to supplant it by tetra-iodopyrrole (Fig. 6) which is manufactured by the iodination of pyrrole. The high price

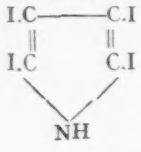


FIG. 6.

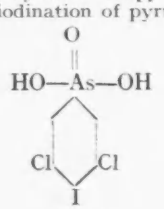


FIG. 7.

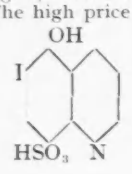


FIG. 8.

of pyrrole makes this substance very expensive, and although it is in no way less efficacious than iodoform, the absence of odour does not compensate for the great difference in price.

Many attempts have been made to introduce iodine into the nucleus of compounds such as salvarsan and tryparsamide, in the hope that the presence of both iodine and arsenic would result in an anti-syphilitic remedy of enhanced power. This has not yet been realised; the presence of iodine in aromatic combination usually lowers the general spirochoeticidal activity of the compound, and also induces in it the power to produce jaundice. An example in point is 3:5:-dichloro-4-iodophenylarsonic acid (Fig. 7) which was investigated by Karrer. He was able to show that the compound possessed no advantage over the corresponding compound containing no iodine, and also proved that the iodoso compound was equally toxic. An interesting case in which the activity of a compound was enhanced by the introduction of an iodine atom is that of idodihydrochaulmoogric acid (Fig. 9), which is better

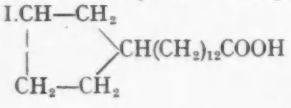


FIG. 9.

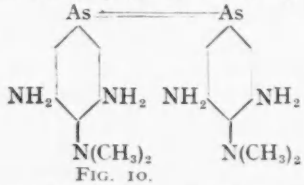


FIG. 10.

than the non-iodinated compound for the treatment of leprosy. Another interesting series of compounds are the halogen derivatives of the well-known anti-syphilitic remedy arsalyt (bisdimethylaminotetraminoarsenobenzene (Fig. 10). This compound has been converted into the dichloro, dibromo and diodo compounds, and the activity of the four compounds compared against various organisms. The results are given in the table below :—

Compound.	Toxic Dose.	Curative Dose.	Therapeutic Index.
Arsalyt	0·25	0·04	6
Dichloroarsalyt .	0·25	0·015	16
Dibromoarsalyt .	0·36	0·02	18
Diiodoarsalyt . ..	0·30	0·0075	40

The organism used in the above test was the spirillum of rabbit syphilis, and it is evident that the progressive increase in the molecular weight of the entering halogen atom is associated with an increase in activity of the compound. It will be evident from the examples already cited that the therapeutic activity of iodine is often associated with the antiseptic activity of its compounds; and interesting instances is the substance "yatren," or 4-oxy-5-iodoquinoline-8-sulphonic acid (Fig. 8), a substance which has given universal satisfaction as an antiseptic for wounds and which, also, on account of its direct action on amoebæ and, their cysts, has been successfully used in amoebic dysentery.

Iodine Compounds and X-rays

The accepted practice in X-ray technique when allied to surgery is to obtain a radiograph of the affected part and to ascertain by direct comparison the position of the injury.

This, of course, is simple enough when the matter is one of simple fracture, since the bone is more opaque to X-rays than the surrounding tissue; when, however, we come to apply the method to the alimentary canal it becomes necessary to render this system opaque to X-rays before any radiograph can be taken. This may be easily done by the administration of a radio-opaque test meal (barium sulphate or bismuth subnitrate). Even this technique breaks down when the gall bladder is the site of operations, and it is in this case that the use of organic iodine compounds comes to the rescue.

It has been found that tetraiodophenolphthalein is comparatively opaque to X-rays, and also that it is concentrated by the gall bladder; the practice, therefore, of cholecystography consists in the administration of a dose of tetraiodophenolphthalein followed in the course of a few hours by the taking of a radiograph of the gall bladder. Since this latter organ concentrates the radio-opaque iodine compound, the radiograph shows it as a definite outline, in which any lesions or cysts are visible. In some respects the iodine addition products of unsaturated oils show a similar action; they are not, however, concentrated by the gall bladder, but are used to ascertain lesions of the lungs.

Thyroxine

Among the most fascinating of organic iodine compounds is thyroxine, one of the active principles of the thyroid gland. Its isolation and synthesis has proved one of the most romantic and interesting chapters in the history of organic chemistry, and warrants a more or less detailed survey.

It was in 1854 that the importance of the thyroid gland was recognised by Moritz Schiff, who experimented upon its extirpation from animals, but it was considerably later before certain Swiss investigators correlated the natural state of thyroid deficiency (myxœdema) with the condition obtained by the complete removal of the gland by operation, and showed that certain diseases were really due to thyroid deficiency. It was first attempted to remove these conditions by the direct implantation of fresh thyroid gland, but it was later shown that the administration of the gland extract by the mouth was equally successful, a fact which proved one of the greatest successes of organotherapy.

Extraction from the Thyroid Gland

The significant fact concerning the thyroid gland, namely, the fact that it contained iodine, formerly believed to be an element not necessary to animal economy, was discovered by Baumann in 1895. Baumann attempted to extract the active principle of the gland by boiling it with 10 per cent. sulphuric acid, and obtained a substance which he termed iodothyrin. This substance which was not in any sense a chemical individual, contained about 10 per cent. of iodine, and possessed only a mere trace of thyroid activity. Other attempts to achieve the separation of the active principle resulted in the isolation of a protein by Oswald. This was called by him thyreoglobulin, and contained 1 per cent. of iodine. Finally, Kendall, working at the Mayo clinic upon literally gigantic quantities of thyroid substance, was able to isolate crystalline thyroxine, the most minute doses of which

were able to exert the curative action usually associated with the gland itself.

Using over three tons of thyroid, Kendall obtained 33 gm. of raw material, upon which he conducted experiments with a view to establishing its constitution and synthesis. He ascribed to it a formula which corresponds to a tri-iodo derivative of oxindole. It was actually claimed that a minute quantity of this compound had been synthesised, but this claim has been withdrawn since it has been demonstrated that this constitution for thyroxine is incorrect, and that susbtances of this formula have no thyroid activity.

Harington's Work

The actual constitution and synthesis of thyroxine rests on the work of Harington, who was able to obtain a very much better yield of thyroxine from thyroid material than had hitherto been obtained, by substituting baryta for the 5 per cent. sodium hydroxide used by previous workers as an extractive. The thyroid material was obtained through the co-operation of the British Drug Houses, through the aid of a Rockefeller Foundation Grant to the University of London, and about 100 gm. of pure crystalline thyroxine was obtained.

The first step in the elucidation of the structure was to remove the iodine and replace it with hydrogen, without otherwise altering the constitution of the molecule. This was successfully accomplished by catalytic reduction, and desiodo-thyroxine proved to be a crystalline substance of the formula $C_{15}H_{15}O_4N$.

Desiodo-thyroxine

The fact that the substance gives Millon's reaction for tyrosine, contains a primary amino group, and gives the triketohydrindene hydrate reaction characteristic of α-amino acids points to it being a phenolic amino acid related to tyrosine. Fusion experiments with desiodo-thyroxin and caustic soda gave (under various conditions) ammonia, oxalic acid, quinol, *p*-hydroxybenzoic acid and a complex phenol $C_{13}H_{12}O_2$, which was subsequently identified as 4-hydroxy-4′-methyldiphenyl ether (Fig. 11) from which it was deduced that the formula (Fig. 12) represented desiodo-thyroxine. This was confirmed by synthesis. The compound 4-methoxy-

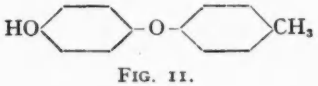


FIG. 11.

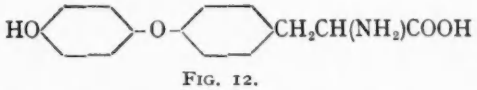
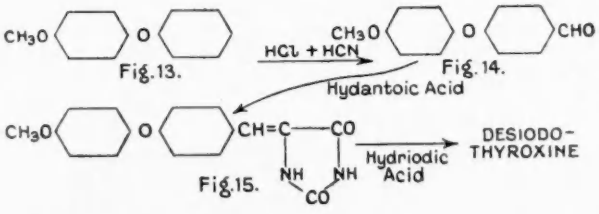


FIG. 12.

diphenyl ether (Fig. 13). was synthesised by the condensation of *p*-bromanisole and potassium phenate. This derivative



of diphenyl ether readily gave the corresponding aldehyde (Fig. 14) when treated with hydrogen chlorine and anhydrous hydrocyanic acid. This substance yields a condensation product with hydantoic acid, which has the formula (Fig. 15), and which by boiling with hydriodic acid gave desido-thyroxine, the hydantoic group being converted to an amino acid residue and the methoxy group being demethylated to a hydroxy group.

Synthesis of Thyroxine

The constitution of desiodo thyroxine having been cleared up, the synthesis of thyroxine itself was attempted. There are twenty-six ways in which four iodine atoms can be introduced into desiodo thyroxine, but Harington, guided by the generalisation of Kendall and Osterberg that phenols containing iodine groups in both positions ortho to the hydroxyl give a colour reaction with nitrous acid and ammonia, taken together with the fact that thyroxine does give such a colour reaction, was able to put forward the formula (Fig. 17) was a working hypothesis for that of thyroxine. He was also

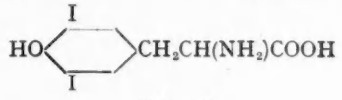


FIG. 16.

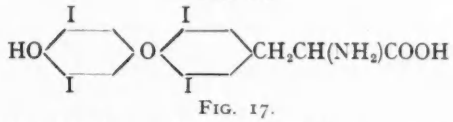
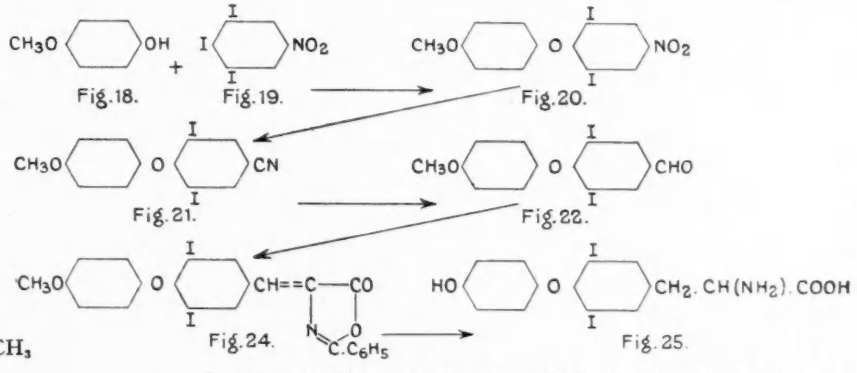


FIG. 17.

assisted by the known fact that certain sponges contain a di-iodotyrosine of the formula (Fig. 16). It was later proved that this hypothesis was correct and the synthesis of thyroxine finally crowned the work. The first step in the synthesis is the condensation of quinol monomethyl ether (Fig. 18) with 3 : 4 : 5-tri-iodonitrobenzene (Fig. 19). This condensation was effected by boiling for a long time in methylethyl ketone solution in the presence of potassium carbonate, and gives



rise to 4-methoxy-4′-nitro-2′ : 6′-di-iododiphenyl ether (Fig. 20). This compound can be converted into the corresponding aromatic amine by reduction, and by diazotisation and treatment with cuprous cyanide it gives the corresponding cyano compound (Fig. 21). By the action of anhydrous stannous chloride the CN group is converted to the CHO group (Fig. 22), but it was found that this compound did not give a reaction with hydantoic acid as in the synthesis of desiodo thyroxine. It was, therefore, condensed with hippuric acid, giving the condensation product (Fig. 24). The problem now resolved itself into the removal of the benzoyl group without the simultaneous removal of the iodine. Free hydrogen and palladium removed both iodine and benzoyl group, but a solution of hydriodic acid in acetic anhydride together with red phosphorus, reduced the compound with the removal of the benzoyl group and the conversion of the methoxy group to hydroxyl. The compound produced (Fig. 25) is identical with thyroxine, save for the absence of two iodine atoms; these can readily be inserted by direct iodination, thus completing the synthesis of thyroxine. The thyroxine prepared by this process was both chemically and physiologically identical with that originally obtained from the gland, and may now be purchased at half the price of the natural substance.

"Why Not Foreign Chemical Plant?"

WE are obliged to a correspondent for pointing out that the symposium on this subject was organised by the British Chemical Plant Manufacturers' Association, not by the Institution of Chemical Engineers (as stated in our issue of April 26).

Applying for a Chemical Appointment

Right and Wrong Methods

MR. A. J. C. COSBIE, at the annual meeting on April 25 of the London Section of the British Association of Chemists, read a paper on "How to apply for a chemical appointment and how not to." Expressing the hope that nothing that he said would cause offence to any who were present, Mr. Cosbie explained that what he was about to tell them arose out of his own experience. The fault lay not always entirely with the applicant. With his application he usually included testimonials which seemed specially designed not to give any relevant information whatever. Professor X, Y, or Z, professor of chemistry, physics or mathematics, would say that the applicant was sober, upright and honest. This was not, in the author's view; of much assistance to the employer. In the case of a young applicant straight from the university, it was a legitimate expectation that he would be sober, or at least not a hardened drunkard, and the employer always hoped that an applicant was upright and honest in default of direct evidence to the contrary. The testimonial was generally studiously vague about what the applicant could do—if anything.

Making Application Distinctive

The applicant was generally rather vague about himself. Of course, if he were without any experience, he could not give useful information upon that point, but he could and ought to make his application distinctive in some way. He could at least give an indication as to the branch of applied science which particularly interested him and the reasons why he wished to obtain that particular post. The applicant evidently seldom looked at the thing from the employer's point of view. He had to wade through perhaps hundreds of applications all exactly the same. It was an extraordinarily difficult matter to arrive at a decision at all. An individual application helped both parties. Then at last one application from among the file aroused some hope. The applicant appeared to be to some extent qualified in training and experience. The hope was soon to be dashed. It was impossible to read either his name or his address. A likely applicant lost in London. Employers wanted first to know what an applicant could do. They did not require details of family history, nor were they interested in assertions that the applicant was intelligent or hardworking. Such information was gratuitous and it was for the employer to decide that. He urged applicants to summarise and paragraph their qualifications and experience and remove every superfluous word. Sooner or later, when all the quite hopeless applications were eliminated, a few remained whom it was decided to interview. The interview was perhaps fixed for 11 o'clock on a certain Tuesday. There were three applicants, one living 60 miles from London and the other two within the London area. One of the applicants, generally the one living nearest, arrived at 11.35 without any apology. In answer to a mild protest he explained that he lived at the other side of London. The other London applicant arrived at 10.30 and desired to be interviewed at once. The third was punctual but turned out for some other reason unsuitable. Again he assured them he was not exaggerating. He was sure they would recognise that the employer's position was sometimes made more difficult than was necessary.

A Beauty Competition

After qualifications, appearance and address counted for a great deal. Of two applicants of about equal ability he who most favourably impressed the employer in these respects stood the better chance of being successful. An interview ought to be regarded as a beauty competition and the necessary precautions taken. Details were really very important and they were noticed. He advised members further to write their application, sleep on it after having sealed it up, rise and in a bad temper before breakfast read it again. This was to put oneself in the position of the employer. If the application survived that test, it could be sent off with some hope.

Mr. W. H. Woodcock, the chairman, thanked Mr. Cosbie for his very interesting paper. He very much hoped that it would encourage others to prepare matter for the Association's meetings which dealt with practical problems of this kind. He personally—and he felt that every other member present—had appreciated the value of the author's communication.

Mr. Henry T. F. Rhodes also expressed his high appreciation of the paper.

Mr. C. B. Woodley, general secretary, gave a brief review of the Association's work, in the course of which he emphasised the question of contracts of service. He pointed out that the Legal Aid Department had done a large volume of work during the past year, and commented on the fact that the majority of cases which might have involved litigation had been settled out of court. He wished to allude, however, to a recent case in which Mr. Haig, a member of the Association, had obtained damages equivalent to three months' salary in lieu of proper notice. A further case had also occurred in the same connection, which had also terminated in favour of a chemist who was a member of the Association.

In thanking Mr. Woodley for his report the Chairman remarked that the precedent for three months' notice was becoming firmly established. This was entirely due to the efforts of the Association in this direction. (Applause.)

Chrome Plating Draft Regulations

ATTENTION having been drawn to the risk of injury to workers employed in the processes of electrolytic chrome plating and anodic oxidation, an investigation by medical inspectors of factories has revealed that in the case of more than half the workers the mucous membrane of the nose had been affected by the spray generated, and in a number of cases ulceration had led to complete perforation of the septum. The skin of other parts of the body—usually the hands or feet—showed evidence of dermatitis or ulceration due to contact with the solutions used in more than 40 per cent. of the cases examined.

In these circumstances the Secretary of State has certified the processes to be dangerous, and draft regulations, which follow the lines of other codes, have been drawn up. The chief requirements are exhaust ventilation, provision of protective clothing, washing facilities, periodic inspections of the hands and forearms and periodic medical examination by the certifying surgeon or by a doctor appointed for the purpose, who is empowered to suspend workers from employment in processes involving contact with the liquids.

Oxidation Tests for Oil

MR. HAROLD MOORE, in a paper on "Fuel Oils," read on Friday at a meeting of the Institute of Transport in Manchester, stated that in his experience the majority of mechanical breakdowns were not due to lubrication faults. The oxidation test which was used by the Air Board for testing aircraft engine oils consisted of artificially oxidising the oil by blowing air through it while the oil was at a high temperature, and measuring the increase in the coke value and the increase in the viscosity of the oil brought about by this oxidation. It was difficult to make generalisations, but the oils of low specific gravity generally oxidised less than those of high specific gravity. Oils of low sulphur content also came out better on the oxidation test than oils of high sulphur content. It was probable that in the future oxidation tests would be much more largely used than had been the case in the past. At the present time their use was mainly confined to the testing of aircraft engine oils.

U.S.A. Production of Potash in 1929

POTASH produced in the United States in 1929 amounted to 107,820 short tons of potassium salts, equivalent to 61,590 short tons of potash (K_2O), according to the United States Bureau of Mines. Sales by producers amonnted to 101,370 tons of potassium salts, with an equivalent of 57,540 tons of K_2O. The potash materials of domestic origin, sold by producers in 1929, were valued at $2,988,448 f.o.b. plants. About 12,650 tons of potassium salts with an available content of 6,200 tons of K_2O remained in producers' stocks December 31, 1929. The output increased 3·5 per cent. in gross weight, with an increase of 3 per cent. of K_2O. content. The sales of salts decreased 4 per cent., with a decrease of 5 per cent. in K_2O content. The total value of the sales decreased 1 per cent. Stocks of crude salts remaining in hands of producers at the end of 1929 were twice as much as at the end of 1928. The production was chiefly from natural brines in California and distillery residue from molasses in Maryland. Small amounts were also obtained from steel plant dust in Virginia, and Steffen's water in Indiana.

Indian Chemical Notes

(From Our Indian Correspondent.)

Manufacture of Alkalis

The large alkali works of the Dhrangadhra State are now approaching completion. The foundation stone was laid four years ago, and the works are now producing soda ash equal to the best product on the market. The State has got special advantages for the industry. Salt, which is the chief raw material for alkali, is made on the largest scale and at the cheapest price in the immediate locality. Coal has to be brought either from Bengal or C.P. Limestone can be had from Kathiawar. In regard to distribution, the place of manufacture is near the principal consuming centres. As a result of these many advantageous conditions, it is almost certain that alkali products will be manufactured at the Dhrangadra works at prices which will compete favourably with imported products.

Salt and Sale

The President of the Indian Tariff Board which has been inquiring into the salt industry, proposed some time ago what he called a rationalisation scheme for the sale of indigenous salt through the agency of a marketing board. The Karachi manufacturers of salt have now issued a memorandum wherein they discuss the possible results of such a scheme and oppose it altogether. They state that as soon as the Indian and Aden output of salt exceeds the Indian demand, established salt works will be in danger of ruin. Aden has always been able to undersell India in open competition, and as India's total demand is 440,000 tons, of which Aden can supply 350,000 tons, there will only be 90,000 tons to share among Indian salt works, capable of supplying much more. An agreement between Indian and Aden manufacturers is out of the question and a similar agreement between Indian manufacturers is unlikely. Tenders are also objectionable as this would mean a profit to some manufacturers and ruin to others and would result in cut-throat competition.

Demands Made

The memorandum proceeds to state that what is necessary is that over-production by multiplication of works should be checked, prices established, and open competition introduced between internal and external manufacturers. An import duty of 4 annas per maund is also urged on Aden salt imported into India. Assistance should also be given to the Indian industry by limiting the amount of salt importation from Aden, which, it is suggested, should be an amount equal to 25 per cent. of the total quantity imported into India during the preceding year. If the duty caused a rise in prices, it would justify the rise only to the figure which Calcutta willingly paid in August, 1929, when the combine made a general reduction of Rs.28 per 100 maunds.

Cotton Chemistry

The chief work carried out in the Chemistry section of the Technological Laboratory in Bombay, which belongs to the Indian Central Cotton Committee, was the quantitative determination of some of the chemical constituents of the standard Indian cottons of the previous year, viz., the ash left by each cotton on combustion, and the nitrogen, phosphorus, and wax content of the cottons, including the determination of a number of constants for each wax (melting point, iodine value, and saponification value). Some preliminary experiments have also been carried out and are being continued, with a view to elucidating the question of the spontaneous combustion of cotton.

Research in Dyeing

The Laboratory of the Stores Department has succeeded in introducing the use of a special dye known as Naphthol Red ASTR in place of the dye ordinarily used (Turkey Red) for the dyeing of cotton textiles. Mills in India could not produce a cloth dyed with Turkey Red and they were in consequence considerably handicapped in their competition with foreign manufacturers of cloth of this colour. In order to overcome this difficulty, a special investigation was undertaken by the Department with a view to discovering a suitable substitute dye for Turkey Red. It was eventually discovered that Naphthol Red ASTR gave a satisfactory result and could be employed without difficulty in the mills in India.

Soap Making Experiments

At the Industrial Research Laboratory in Bengal, improvements in the graining of the soap during the salting process have been achieved. At present about 70 per cent. of manufactured soap in Bengal consists of saponifiable oil and the principal oil used all over Bengal is Mowa, which is imported from outside the province. A substitute has now been found in the seed nuts of the Punnag tree, which grows in abundance in Bengal. The results so far obtained from this oil have been poor, owing to the absence of knowledge how to refine it. The experimental work conducted at the Laboratory, however, shows that it is a first class raw material for the making of the best quality of moulded soap, light in colour, and with satisfactory cleansing and lathering properties. Further work is in progress.

Bengal's Raw Hides

Investigations into the qualities of raw hides in Bengal have disclosed that the hides are capable of producing very fine grained leather, the grains of some of the cow hides being as fine as those of European calf skins. In size and pattern, the hides are excellent. But these valuable qualities are to some extent marred by various blemishes found on the surface of the hides. But even so, the Bengal Tanning Institute has fully demonstrated that marketable leather can be turned out from them by skill and care. The problem before the tanners in Bengal is to find out a way for the eradication of the defects.

Manurial Experiments

Properly planned field experiments are gradually adding to our knowledge of various crops in different Provinces. The use of ammonium sulphate and of such manures as "Ammonphos" is steadily increasing. It is reported from Bihar and Orissa that in that province alone the various firms have now close on 100 agents for the sale of fertilisers. In Madras also the use of artificial manures is increasing rapidly. A new experimental station has been established by Government in cooperation with firms to test the merits of the different artificial fertilisers side by side under the same conditions so that definite and reliable advice may be given to the cultivators every time they consult the Agricultural Department.

Heavy Chemicals

The report of the Tariff Board on the chemical industry was received by the Government of India some time ago, and the fact that it has not yet been published by the Government has been the subject of complaint in India. In the Assembly Sir Purushottamdas Thakurdas suggested that the Government was not prepared to give protection to the industry because it would come in the way of the British industry, and while there was inaction the Indian chemical industry, which is patiently holding on in hopes of protection, would be ruined, and then protection, even if it came, would be too late. In view of this criticism, it appears that the report, as well as the Government's conclusions thereon, will be published shortly.

Inquiry into Tanning Industry

The Government of Bombay had appointed an expert to inquire into the conditions of the tanning industry in the province and to suggest measures for its improvement. The report now submitted states that the big tanneries look after export leather, while the village tanneries cater for village needs only. In both cases the methods followed are generally very crude, and it is, therefore, recommended that the Government should start a tanning department which should work under the guidance of the Director of Industries, and that attached to this department there should be at least one tanning expert with good practical experience in the industry, both in Europe and India.

Objects of Tannery

The principal objects of this model tannery should be: (1) research on tanning methods with a view to adapting modern Western processes to local conditions; (2) investigations on local tanstuffs, to find out and utilise new and commercially beneficial products from different forests of India; (3) a survey of hides and skins of various districts of the province and of different parts of India to determine the qualities of leather they produce; (4) helping the trade with machine work, technical advice and schemes, etc.; (5) training apprentices to provide existing tanneries with expert tanners and to create a body of technically-trained educated men who may take up tanning as a profession.

From Week to Week

DR. FRANCIS LIONS has been appointed Acting Professor of Organic Chemistry at Sydney University.

DR. H. B. WATSON, lecturer in Chemistry at Bangor University College, has been appointed head of the Department of Industrial Chemistry at the Cardiff Technical College.

CANADIAN PLATINUM by-product metals, which include palladium, rhodium, ruthenium, osmium and iridium are, in future, to be sent from Canada to England for final separation.

THE STANDARD OIL CO., of New Jersey, according to a report in the *New York World*, is rumoured to be about to embark on a new field in industrial chemistry in competition with the du Pont company of Delaware and the German chemical industries.

A NEW INSTITUTE, which has been erected at Paisley for the local branch of the Amalgamated Society of Dyers, Bleachers, Finishers and Kindred Trades, was formally opened on Saturday, April 26, by Mr. E. Verity, the general secretary of the society. During the ceremony presentations were made to Mr. and Mrs. Verity and to Mr. J. Deveney, the secretary of the Paisley branch.

DOUGHTY-RICHARDSON FERTILISERS, LTD., of Lincoln, are to be associated with the firm of Fison, Packard and Prentice, Ltd., which was formed last year as the result of a merger in the fertiliser trade. Mr. F. G. C. Fison, chairman of Fison, Packard and Prentice, Ltd., and Mr. P. J. Chevallier will join the board of the Doughty-Richardson Company, and the chairman of that company, Mr. L. W. Smith, will join the board of the Fison group.

THE FOLLOWING AWARDS have been made out of the six essays submitted in connection with the Ceramic Society's Wedgwood Bicentenary Competition for a paper on the technical achievements of Josiah Wedgwood: First prize (35 guineas), Mr. A. T. Green, Newcastle; second prize (15 guineas) Mr. Edward Bostock, Etruria; honorary mention, Mr. J. A. Audley, Stoke. The first prize winner is a research worker on the staff of the British Refractories Research Association at the North Staffordshire Technical College, and is a past president of the Stoke-on-Trent Association of Engineers.

THE SUGGESTED INDUSTRIALISATION of a portion of Dartmoor by the introduction of China Clay works, it is announced, will not materialise. The Whitehall Securities Corporation, after consultation with the Duchy of Cornwall, have decided, in view of all the circumstances, not to proceed further with the proposition at Postbridge close to the head waters of the River Dart. From the outset strong opposition to the project was voiced in many parts of the county by individuals and organisations, including interested fishery boards and learned societies.

WORKPEOPLE, other than seamen, in Great Britain and Ireland, reported as killed in the course of their employment during March numbered 218, as compared with 216 during the previous month, and with 232 in March, 1929. Four of these were in chemical works. A total of 64 cases of poisoning, anthrax, and epitheliomatous and chrome ulceration was reported, including two cases of lead poisoning in paint and colour works, 11 cases of epitheliomatous ulceration from oil processes, five from tar and three from pitch; one case of chrome ulceration from dyeing and finishing, one from chrome tanning and 10 from other industries.

AWARDS in the second annual prize competition promoted by Courtaulds, Ltd., for design and structure of new artificial silk fabrics, and open to all British students in technical colleges and schools, are as follows: Group No. 1—J. North (Bradford Technical College) (1), R. Scott (Nelson Technical School) (2), H. B. Marchant (Bradford T.C.) (3); Special Fabric Awards (A), Tappet Cloth, H. Eastwood (Bradford T.C.), (B), Dobby Cloth, G. Carter (Bradford T.C.), (C); Jacquard Cloth, E. Wilkinson (Blackburn Technical College). Group No. 2—R. Wood (Bradford T.C.), J. Worsley (Burnley Technical College), L. A. P. Hick (Nelson Technical School), T. Guthrie (Burnley T.C.).

MR. E. J. CRANE, editor of *Chemical Abstracts* (American Chemical Society), states that during the past two years fifty-two new journals dealing directly or indirectly with chemists have made their appearance.

THE NATIONAL OIL REFINERIES, Skewen, near Swansea, are to carry out a big welfare scheme for employees, which will include the laying out of various sports and athletic pitches and the erection of an institute, at a total estimated cost of £15,000.

PRIESTMAN COLLIERIES, LTD., one of the largest coke-producing firms in the County of Durham, has acquired the Teams By-Product Coke Works, Ltd., near Gateshead. The works, which comprise 132 modern ovens, have been in voluntary liquidation.

RECENT WILLS include: Ernest William Kennedy, of West Town (Somerset), chemical manure manufacturer (net personalty, £559), £13,043.—Professor John Oliver Arnold (71), of Burnside Hotel, Bowness-on-Windermere, Westmorland, Emeritus Professor of Metallurgy in the University of Sheffield, £115.

THE EXPLOSION of a large reservoir of ammonia in a factory at Ougrée, in the province of Liége, Belgium, on Thursday, April 24, led to seven men being killed outright, while seventy are reported to be suffering from the effects of the gas. Portions of the reservoir were hurled a distance of over 300 ft.

DR. MILTON C. WHITAKER, of New York, formerly president of the U.S. Industrial Chemical Co., and vice-president of the U.S. Industrial Alcohol Co., has given up private consulting practice in order to join the executive staff of the American Cyanamid Co. as president of its new subsidiary company, the Catalytic Process Corporation.

AT THE RECENT ANNUAL MEETING of the National Union of Drug and Chemical Workers a resolution on the agenda to ratify the proposed Anglo-Russian Chemical Workers' mutual aid agreement was withdrawn by the National Executive Council, on the ground that it had "failed to secure that widespread consideration it was entitled to."

NEGOTIATIONS, it is learned from an Australian source, are proceeding between the Victorian Mines Department and Imperial Chemical Industries, Ltd., for the renewal of certain leases held by the company over brown coal fields at Gelliondale, near Yarram, in South Gippsland. The coal deposits in the district are among the most valuable in the State, and it has been suggested that they should be used for the extraction of motor fuel and other products.

SPEAKING AT the second annual meeting of Unilever, Ltd., held on Wednesday at the Cannon Street Hotel, London, the Earl of Bessborough said the economic financial crisis which arose towards the end of last year had had no adverse influence on the volume of their business. The turnover of their chief commodities of margarine and soap had shown an increase, and during the current year trade for the first quarter had again advanced, and represented a new record. An increase in and stabilisation of the price of seed oil at a figure which would show an adequate return to both producers and consumers would be welcomed.

MAJOR GUY M. KINDERSLEY, M.P., presided at the first annual meeting of Einstein's Electro-Chemical Process, Ltd., held in London on Wednesday. The company, he said, had experienced considerable difficulties in getting their special equipment delivered at Slough, and also in obtaining and training operatives and sales representatives, but, fortunately, these difficulties were now over, and the works were engaged on productive work, which was growing at a very gratifying rate. It was hoped that they would reach the profit-making stage before the end of 1930. Thousands of articles for various industries were being treated weekly, and a special application of the process to the cutlery trade had been received with enthusiasm. At the Acton factory they were now in a position to manufacture on a commercial scale the series of products to which the Pigache processes were applicable. A number of agreements had been entered into at home and abroad for the disposal of the products of the factory, and covered the largest potential markets for colloidal sulphur and copper carbonate.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Accepted Specifications

325,757. Crystallising Salts. H. O. Dering, Tregenna, Cherry Orchard, Staines, Middlesex. Application date, May 13, 1929.

Supersaturated solutions of salts such as magnesium sulphate, sodium carbonate, sodium sulphate or thiosulphate are formed in a vessel having a smooth and continuous inner surface, by cooling a hot solution in a quiescent state while preventing evaporation at the surface. The solution is then crystallised by agitation or seeding. Evaporation at the surface is prevented by covering with a layer of water or other liquid. Under these conditions the solution forms an interlacing crystalline mass without solid sides.

325,772. Separating Solids and Liquids. R. F. Stewart, R. J. Venn, and Dorr Co., Ltd., Abford House, Wilton Road, London. Application date, July 1, 1929.

Compounds such as β-naphthol which are difficult to filter are recovered from a liquid dispersion by adding a finely divided solid material such as sand and filtering the mixture in a continuous rotary filter. The solid material is then treated in bowl classifier so that a concentrated suspension of the material is obtained and the sand is separated. The concentrated suspension is then heated till the solid material fuses, and the two liquid layers are then separated.

325,797. Dyes. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, August 25, 1928.

The nitro group in mono-nitro-anthanthrones or the nitro groups in poly-nitro-anthanthrones are wholly or partly replaced by residues other than amino groups, *e.g.*, halogen. This may be done by heating the nitro-anthanthrone with halogen, or by treating the poly-nitro-anthanthrones with benzoyl halides.

Alternatively, the nitro-anthanthrones are first reduced to the amino derivatives, which are diazotised and replaced by halogen, hydroxy, cyano, carboxylic, mercapto, or thiocyano groups. The nitro groups in poly-nitro-anthanthrones may be partly replaced by partial reduction of the poly-nitro-derivative by the calculated amount of hydrazine or glucose, and replacement of the amino group by the above substituents. Examples are given of the production of monochlor-anthanthrone, dichlor-anthanthrone, and tetrachlor-anthanthrone, by chlorinating the corresponding nitro derivative. Also monohydroxy-anthanthrone, monomethoxy-anthanthrone, monocyano-anthanthrone, and several others.

325,816. Distilling Tar to Obtain Complex Hydrocarbons and Wax. E. Rahmell, Telgte, Westphalia, Germany. Application date, November 27, 1928.

Coal distillation residues such as tar or pitch are mixed with contact agents such as iron chloride and iron oxide, aluminium chloride and aluminium oxide, calcium chloride and calcium oxide, calcium chloride and aluminium oxide, magnesium chloride and magnesium oxide. The mixture is melted and distilled with steam, preferably with the addition of crude montan wax and hydrogen. Oil and water pass over at 100°–220° C., anthracene oil at 220°–300° C., yellow wax at 300°–360° C., and reddish resin at 360°–450° C. Ammonia is also evolved, and a hard coke remains. The 220°–300° C. fraction is treated with sodium or sodamide to obtain fluorene, and the products distilling above 360° C. are treated with carbon disulphide to obtain chrysenes, on filtration.

325,817. Separating Unsaturated Hydrocarbons from Gas Mixtures. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, November 26, 1928.

The gas mixtures are washed with a liquid ketone containing more than three carbon atoms in the molecule, such as methyl-ethyl-ketone, methyl-propyl-ketone, diethyl-ketone, diacetone-alcohol, ketone oils, aceto-phenone, cyclo-hexanone, and methyl-cyclo-hexanone. Thus a gas mixture containing 8 per cent. of acetylene, obtained by treating coal hydrogenation gas in the electric arc, is washed with cyclo-hexanone, at a pressure of 25 atmospheres.

325,822. Cellulose Esters. H. Dreyfus, 22, Hanover Square, London. Application date, November 21, 1928.

Cellulose or its conversion products or derivatives containing one or more hydroxyl groups are treated with an organic acid anhydride in the presence of a tertiary organic base to obtain cellulose carboxylates. Suitable organic bases include pyridine, N-alkyl or aryl piperidines, di-alkyl anilines, or naphthylamines, or their homologues, hexahydrodialkyl anilines, and their homologues, dimethyl-*n*-hexylamine, and iso-amyl-diethyl-amine. The esters obtained may be subjected to secondary treatment to vary their solubility properties. Several examples are given.

325,832. Lubricating Oils. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, November 28, 1928.

Lubricating oils are obtained by treating alkylated naphthalenes with a silent electric discharge. Thus a mixture of ethyl and propyl naphthalene obtained as described in Specification 273,665 (see The Chemical Age, Vol. XVII, p. 221) is treated in a quartz ozoniser for 20 hours with a silent discharge produced by an alternating current of about 3,500 periods per second and 9,000 volts.

325,846. Organo Mercury Compounds. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, November 30, 1928.

Aromatic hydrocarbons, *e.g.*, benzene, are heated with mercuric oxide and an excess of glacial acetic acid under a reflux condenser to 90°–95° C. The product, in the case of benzene, is phenyl-mercuric acetate.

325,847. Solutions of Barbituric Acids. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, November 30, 1928.

The difficultly soluble barbituric acids, *e.g.*, phenylethyl-barbituric acid or cyclo-hexanylethyl-barbituric acid, are rendered soluble in water by the use of substituted amides of the lower fatty acids containing only one alkyl group attached to the nitrogen atom, *e.g.*, monomethyl or monoethyl acetamide.

325,855. Propyl Cresols. Rheinische Kampfer Fabrik Ges., Oberkassel, Düsseldorf, Germany. International Convention date, October 12, 1927.

Propylene, or a substance yielding propylene, is heated with *o*- or *p*-cresol in the presence of a solid dehydrating catalyst such as aluminium thorium or tungsten oxide or aluminium phosphate, which may be supported on carriers such as pumice, silica gel, etc., to obtain propyl and isopropyl *o*- and *p*-cresols. Other suitable catalysts include bleaching earth, Florida, fuller's and silica earths, dried kaolins, brick clays, "Frankonit" and "Tonsil." Thus *o*-cresol vapour and excess of propylene, are passed at 250°–350° C. over alumina, and the condensed reaction product fractionated. Products include "ortho-thymol" (2-oxy-1-methyl-3-isopropyl-benzene), boiling at 225°–226° C., "α-meta-isocymol-phenol" (2-oxy-1-methyl-3-isopropyl benzene), boiling at 231° C., and also a small quantity of carvacrol. Other examples are also given.

325,856. Thymol and its Isomers. Rheinische Kampfer Fabrik Ges., Oberkassel, Düsseldorf, Germany. International Convention date, October 12, 1927.

Thymol is obtained by the reaction of *m*-cresol and propylene in the gaseous phase in the presence of catalysts such as those referred to in Specification 325,855 above, and also anhydrous zinc and magnesium chloride, anhydrous acids or acid anhydrides. The reaction is effected at 200°–380° C. Thymol is obtained, and also two isomers melting at 69° C. and 112° C. and boiling at 228·5° C. and 245°–246° C. An example is given.

325,800. HYDROCYANIC ACID. T. S. Wheeler, Wynthorpe, Woodlands Road, Hartford, Cheshire, and Imperial Chemical Industries, Ltd., Millbank, London. Application date, September 3, 1928.

A mixture of methane or coal gas and nitrogen or ammonia is preheated to at least 800° C. and subjected to an arc or spark discharge to obtain hydrocyanic acid.

325,862. DESTRUCTIVE HYDROGENATION. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, September 28, 1928.

Coal is destructively hydrogenated into liquid fuels of low boiling point in the presence of catalysts in more than one stage, and choking of the catalyst by carbon compounds of high molecular weight is avoided by converting these compounds into compounds of lower molecular weight or by removing them from the vapour products by condensation or absorption with liquids or porous bodies such as active carbon or silica.

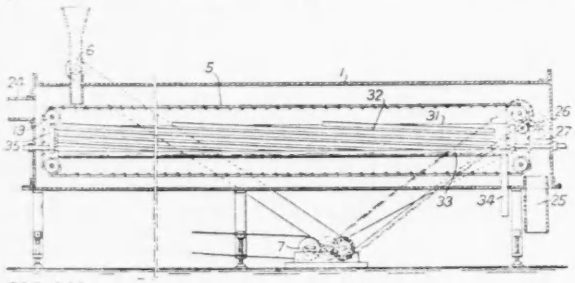
In an example, brown coal tar is treated with hydrogen at 420° C. and 200 atmospheres in the liquid phase. The product is vaporised and passed at 420° C. over a molybdenum-zinc catalyst insensitive to clogging and then at 460° C. over a catalyst of molybdenum and chromium trioxides. The product contains 80–90 per cent. of benzines free from phenols. Reference has been directed by the Comptroller to specification 296,700.

325,910. METHOXY SULPHOCYANIDES. A. Carpmael, London. From I.G. Farbenindustrie Akt. Ges., Frankfort-on Main, Germany. Application date, December 12, 1928.

Insecticides consisting of aromatic methoxy sulphocyanides containing one or more methoxy groups and more than one thiocyanate group, each of the latter being attached to the nucleus through a CH_2 group, are obtained by treating the corresponding halogen compound with ammonium thiocyanate. The products are dissolved in acetone with a wetting agent added.

325,948. SULPHUR. J. Thame and W. E. Langton, 639, Salisbury House, London Wall, London. Application date, January 16, 1929.

Crushed material is fed by a rotary device 6 on to a conveyor 5, passing over toothed wheels 19 in a chamber 1. Steam or



325,948

other gas is supplied at 24 and is discharged at 25 with any residual material falling from the conveyer. A rotary brush 26 is provided to clear the conveyer. Material falling through the conveyer is received on a ∧-shaped table 31, which is agitated and heated by tubes 35. Corrugations 32 allow sulphur to drain to gutters 33 and discharge conduits 34, but retain solid material. All the moving parts are driven from a shaft 7.

325,933. DYES. Imperial Chemical Industries, Ltd., Millbank, London, and S. Coffey, Crumpsall Vale Chemical Works, Blackley, Manchester. Application date, January 1, 1929.

Specifications 272,321 and 301,193 (see THE CHEMICAL AGE, Vol XVII, p. 85, and Vol. XIX, p. 638) describe the production of triaryl carbinols by the reaction of diarylketones with aromatic halogen compounds in the presence of alkali metals and diluents. In this invention, a mixture of the diarylketone, other than tetra-alkyl-diamino diarylketones, and the halogen uryl is added to the heated diluent containing the alkali metal. Active groups such as nitro, primary amino, carboxylic, salphonic, or phenolic groups, should not be present. Examples describe the condensation of benzophenone and *p*-chlortoluene or chlor-benzene, di-*p*-tolylketone and brombenzene, 4-methoxy-benzophenone and *p*-chloranisole, all in the presence of benzene and sodium; also benzophenone and chlorbenzene in the presence of benzene and potassium, and benzophenone and *p*-chloranisole in the presence of sodium and ether.

325,968. Separating hydrogen from gaseous mixtures. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, January 30, 1929.

Gaseous mixtures containing hydrogen are treated with liquids having a solvent power for hydrogen which increases with temperature, *e.g.*, tar oils, mineral oils or fractions, used at temperatures of 100°-200° C. and pressures of 50-100 atmospheres. The hydrogen is recovered by reduction of temperature or pressure.

325,985. SYNTHETIC DRUGS. A. J. Stephens, London. From R. von Wolfing and E. Möller (J. A. Wulfing, 231, Friedrichstrasse, Berlin). Application date, February 8, 1929.

2-Phenyl-quinoline-4-carboxylic acid is obtained by condensing *p*-toluidine, benzaldehyde and pyruvic acid in alcoholic solution, or by heating 5-methylisation with acetophenone in caustic alkali. 6 : 8-Dimethyl-2-phenyl-quinoline-4-carboxylic acid is obtained by a similar condensation of 5 : 7-dimethyl-isatin. These acids are then treated with *n*-propyl-, *n*-butyl-, or isobutyl-sulphuric acid to obtain the *n*-propyl, *n*-butyl, and isobutyl esters. The products have therapeutic properties.

326,022. DYE INTERMEDIATES. O. Y. Imray, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, March 12, 1929.

1-ω-amino methyl naphthalene is sulphonated with concentrated or fuming sulphuric acid to obtain a mixture of the 2- and 4-sulphonic acids which may be further sulphonated to the 2 : 4-disulphonic acid. Examples of the production of these products are given.

NOTE.—Abstracts of the following specifications, which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention :—303,366 (I.G. Farbenindustrie Akt.-Ges.), relating to alkali hydroxides, see Vol. XX, p. 234; 316,282 (I.G. Farbenindustrie Akt.-Ges.), relating to condensation products from acetylene, see Vol. XXI, p. 295.

Specifications Accepted with Date of Application

299,419. Purification of crude aromatic hydrocarbons. Selden Co. October 26, 1927.

303,520. Carbazole derivatives, Manufacture of. I.G. Farbenindustrie Akt.-Ges. January 5, 1928.

303,755. Aluminium and aluminium alloys, Preparation of. A. Pacz. January 7, 1928.

303,808. Decomposition products from iron sulphates, Manufacture of. I.G. Farbenindustrie Akt.-Ges. January 9, 1928.

303,901. Hydroxy carboxylic acids of carbazole, Manufacture of. I.G. Farbenindustrie Akt.-Ges. January 12, 1928.

304,196. Heat-treatment of steel. H. Hanemann. January 16, 1928.

305,218. Protection of iron surfaces against corrosion. I.G. Farbenindustrie Akt.-Ges. February 2, 1928.

306,046. Alkali nitrates, Production of. F. Jost. February 14, 1928.

306,048. Gold and silver, Production of. V. Volpato. February 14, 1928.

307,471. Ethyl acetate, Manufacture of. I.G. Farbenindustrie Akt.-Ges. March 8, 1928.

308,348. Cellulose esters and ethers, Preparation of. British Celanese, Ltd. March 22, 1928.

308,681. Thymol and its isomers, Preparation of. Rheinische Kampfer-Fabrik Ges. March 26, 1928. Addition to 326,215.

310,869. Solid compounds, capable of being spread, containing iodine and potassium iodide. R. Geller. May 2, 1928.

312,648. Zinc white pigments, Production of. C. R. Beringer. May 29, 1928.

315,768-9. Fluorine, Electrolytic manufacture of. K. Fredenhagen. July 17, 1928.

316,986. Metallurgical furnaces. Trent Process Corporation. May 11, 1928.

325,672. Dyes and dyeing. R. S. Barnes, B. Wylam, J. Thomas, and Scottish Dyes, Ltd. October 4, 1928.

325,687. Reducing ores, Processes and apparatus for. J. Herrmann, B. G. Franzen, L. M. Hubbard, and E. R. Zacharias. January 4, 1929.

327,702. Iodination of organic compounds capable of being vatted. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) October 29, 1928.

327,705. Esters of O-arylated or O-aralkylated divalent alcohols, Manufacture of. O. Y. Imray. (*I.G. Farbenindustrie Akt.-Ges.*) December 29, 1928.

327,707. Oxidation of organic compounds of high molecular weight. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) January 5, 1929.

327,711. Organic iodo-halogen compounds, Production of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) October 29, 1928.

327,712. Anthanthrone derivatives, Production of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) October 9, 1928.

327,714. Benzyl cellulose, Manufacture of. Imperial Chemical Industries, Ltd., and D. Traill. October 3, 1928.

327,715. Hydrocarbon gases, Treatment of. Anglo Persian Oil Co., Ltd., A. E. Dunstan, and R. V. Wheeler. October 5, 1928.

327,721. Lubricating oils, Production of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) December 10, 1928.

327,734. Nitrogenous derivatives of pyranthrone, Production of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) October 9, 1928.

327,746. Condensation products of carbazole compounds and olefines, Manufacture of. A. Carpmael (*I.G. Farbenindustrie Akt.-Ges.*) December 11, 1928.

327,756-8. Vat dyestuffs, Production of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) October 18 and December 17, 1928.

327,830. *m*-2-xylidine, Manufacture of. Imperial Chemical Industries, Ltd., and J. Kenner. March 5, 1929.

327,840. Mixtures of finely divided solids and gases, Processes and apparatus for. H. Harper, R. Scott, and Imperial Chemical Industries, Ltd. March 20, 1929.

327,864. Stable leuco-indigo preparations, Manufacture of. Imperial Chemical Industries, Ltd., A. Davidson, A. J. Hailwood, F. Henesey, and A. Shepherdson. April 15, 1929.

327,865. Nickel-iron alloys, Manufacture of. General Electric Co., Ltd., S. V. Williams, and G. Polgreen. April 18, 1929.

327,885. Potassium monophosphate, Production of. Kali-Forschungs-Anstalt Ges. November 19, 1928.

327,909. Potassium nitrate, Production of. O. Kaselitz and Kali-Forschungs Anstalt Ges. June 13, 1929.

327,911. Electroplating metals with chromium. J. Bauer. June 17, 1929.

327,924. Methane, Manufacture of. Schering Kahlbaum Akt.-Ges. June 8, 1929.

327,938. Alkali chlorides from crude potassium carbonate solutions, Process of removing. I.G. Farbenindustrie Akt.-Ges. October 16, 1928.

Applications for Patents

[*In the case of applications for patents under the International Convention, the priority date (that is, the original application date abroad which the applicant desires shall be accorded to the patent) is given in brackets, with the name of the country of origin. Specifications of such applications are open to inspection at the Patent Office on the anniversary of the date given in brackets, whether or not they have been accepted.*]

Aktieselskapet Farmakon. Extraction of alkaloids. 12,245. April 17. (Norway, April 17, 1929.)

British Industrial Solvents, Ltd., and Wiesler, K. Production of acetaldehyde. 12,280. April 17.

Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of substantive dyeing diazo dyestuffs containing copper. 11,829. April 14.

—— Manufacture of ammohydroxyaryltriazines. 11,830. April 14.

—— Manufacture of *a*-naphthol. 12,111. April 16.

—— Manufacture of oxidation products of artificial resins. 12,226. 12,227. April 17.

—— Manufacture of quinoline derivatives. 12,228. April 17.

—— Manufacture of iodo methane sulphonic acid, etc. 12,721. April 24.

Consortium für Elektrochemische Industrie Ges. Manufacture of dichlorethylene. 12,244. April 17. (Germany, April 20, 1929.)

Fairweather, D. A. W., Scottish Dyes, Ltd., and Thomas, J. Dyes and dyeing. 12,073. April 16.

Groves, W. W., and I.G. Farbenindustrie Akt.-Ges. Manufacture of azo dyestuffs. 11,937. April 15.

Groves, W. W., and Otto and Co., Ges. Production of sulphuric acid from water gases containing hydrogen sulphide. 11,816. April 14.

Haddock, N. H., Imperial Chemical Industries, Ltd., Perkin, A. G., and Shepherdson, A. Manufacture of dyes, etc. 12,233. April 17.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of mixed fertilizers. 11,790. April 14.

—— Recovery of molybdenum from mixtures of molybdenum with metals, etc. 11,791. April 14.

—— Apparatus for continuous treatment of materials. 12,053. April 16.

—— Carrying out catalytic oxidations. 11,793. April 14.

—— Manufacture of artificial masses. 12,198. April 17.

—— Manufacture of vat dyestuffs. 12,199, 12,200. April 17.

—— Preparation of photo-sensitive films. 12,816. April 25.

—— Dyeing wool. 12,817. April 25.

—— Manufacture of styrenes. 12,919. April 26.

I.G. Farbenindustrie Akt.-Ges. Separation of tars, etc., from dust, etc. 11,792. April 14.

—— Manufacture of ammohydroxy-aryltriazines. 11,830. April 14.

—— Manufacture of azo dyestuffs. 11,937. April 15.

—— Manufacture of vat dyestuffs. 11,940. April 15. (Germany, April 15, 1929.)

—— Manufacture of indigoid vat dyestuffs. 12,110. April 16. (Germany, April 22, 1929.)

—— Manufacture of N-methyl compounds of the pyridine series. 12,242. April 17. (Germany, April 19, 1929.)

—— Production of colour resists. April 17. 12,246. (Germany, April 18, 1929.)

—— Production of colour pictures on lenticular films. 12,248. April 17. (Germany, April 17, 1929.)

—— Manufacture of vat dyestuffs of the anthraquinone series. 12,484. April 22. (Germany, April 22, 1929.)

—— Apparatus for impregnating webs of cloth, etc. 12,552. April 23. (Germany, April 23, 1929.)

—— Manufacture of acid wool dyestuffs. 12,929. April 26.

Imperial Chemical Industries, Ltd. Pickling metals, etc. 11,805. April 15. (United States, April 17, 1929.)

—— Coating-compositions. 12,036. April 16.

—— Manufacture of cellulose ethers. 12,035. April 16.

—— Vulcanization of rubber, etc. 11,899. April 15.

Meffert, H. Producing quinine preparation. 11,911. April 15.

Nyrop, J. E. Catalytic processes. 11,973. April 15.

Peake, A. M. Production of acetaldehyde. 12,280. April 17.

Soc. of Chemical Industry in Basle. Manufacture of cellulose derivatives. 11,817. April 14. (Switzerland, April 13, 1929.)

—— Manufacture of basic ethers of quinoline carboxylic acid amides. 12,243. April 17. (Switzerland, April 17, 1929.)

Akt.-Ges. für Koklensäure-Industrie. Preparation of solid carbon dioxide. 12,864. April 25. (Germany, April 27, 1929.)

Bloxam, A. G., and Soc. of Chemical Industry in Basle. Manufacture of cellulose derivatives. 12,551. April 23.

—— Manufacture of anthraquinone derivatives. 12,681. April 24.

—— Manufacture of anthraquinone derivatives. 12,812. April 25.

Böhme Akt.-Ges., H. T. Preparation of sulphonic acids of the aliphatic series. 12,703. April 24. (Germany, May 3, 1929.)

Bucherer, H. Preparing dye vats. 12,679. April 24. (Germany, April 24, 1929.)

Coley, H. E. Manufacture of zinc, etc. 12,660. April 24.

Groves, W. W., and I.G. Farbenindustrie Akt.-Ges. Manufacture of acid wool dyestuffs. 12,929. April 26.

Gutehoffnungshütte Oberhausen Akt.-Ges. Production of formaldehyde from methane and carbon dioxide. 12,522. April 23. (Germany, April 29, 1929.)

—— Production of acetaldehyde from methane and carbon dioxide. 12,523. April 23. (Germany, April 29, 1929.)

I.G. Farbenindustrie Akt.-Ges., and Mond, A. L. Storing, etc., acetylene for autogenous working of metals, etc. 12,383. April 22.

Imperial Chemical Industries, Ltd., and Mason, F. A. Dehydration of maleic acid. 12,793. April 25.

—— Vulcanization of rubber, etc. 12,906. April 26.

Legerlotz, H. Preparing aromatic monohydroxyamino alcohols, etc. 12,791. April 25.

Scottish Dyes, Ltd., Shaw, C., Thomas, J., Thomson, R. F. Production of dibenzanthrone derivatives, etc. 12,708. April 24.

Victor Chemical Works. Manufacture of phosphorous compounds. 12,465. April 22. (United States, April 29, 1929.)

French Naval Stores Industry during 1929

EXPORTS of turpentine and rosin for the crop year May 1 to November 30, 1929, declined. Turpentine shipments dropped to 5,099 metric tons as compared with 7,836 tons for the same period of 1928 and 7,036 tons in that of 1927. Germany, the largest purchaser, took 1,212 tons, while 969 tons went to Italy. Rosin exports showed a greater loss during the crop period, declining to 29,468 tons as against 35,999 tons in 1928 and 34,744 tons in 1927. Of the total export, Germany received 5,152 tons and Great Britain 2,975 tons. French naval stores manufacturers expressed dissatisfaction in the reduction of the export trade and ascribed the cause partly to higher French prices than prices quoted for American products. With the exception of turpentine purchased by Italy, sales to European countries diminished, while United States exports were higher.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID, CHROMIC.—1s. 0⅝d. per lb. d/d U.K.

ACID HYDROCHLORIC.—Spot, 3s. 9d. to 6s. per carboy d/d, according to purity, strength and locality.

ACID NITRIC, 80° Tw.—Spot £20 to £25 per ton, makers' works according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA (ANHYDROUS).—Spot, 10d. per lb., d/d in cylinders.

AMMONIUM BICHROMATE.—8¼d. per lb. d/d U.K.

BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages free.

BLEACHING POWDER, 35%.—Spot, £7 10s. per ton d/d station in casks, special terms for contracts.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £12 10s. per ton; powder, £14 per ton. (Packed in 1 cwt. bags carriage paid any station in Great Britain. Prices quoted are for one ton lots and upwards.

CALCIUM CHLORIDE (SOLID).—Spot, £4 15s. to £5 5s. per ton d/d in drums.

CHROMIUM OXIDE.—9⅝d. and 10¼d. per lb. according to quantity d/d U.K.

CHROMETAN.—Crystals, 3⅝d. per lb. Liquor, £18 15s. per ton d/d U.K.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 3d. to 1s. 8d. per gall. pyridinised industrial, 1s. 5d. to 1s. 10d. per gall.; mineralised 2s. 4d. to 2s. 8d. per gall.; 64 O.P., 1d. extra in all cases.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE CRYSTALS AND GRANULAR.—4⅜d. per lb. nett d/d U.K. spot; ground ½d. per lb. extra.

POTASSIUM CHLORATE.—3⅞d. per lb., ex-wharf, London, in cwt. kegs.

POTASSIUM CHROMATE.—8¼d. per lb. d/d U.K.

SALAMMONIAC.—Firsts lump, spot, £42 10s. per ton d/d station in barrels. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE, UNGROUND.—Spot, £3 7s. 6d. per ton d/d station in bulk.

SODA ASH, 58° E.—Spot, £6 per ton, f.o.r. in bags, special terms for contracts.

SODA CAUSTIC, SOLID, 76/77%.—Spot, £14 10s. per ton, d/d station.

SODA CRYSTALS.—Spot, £5 to £5 5s. per ton, d/d station or ex depot in 2 cwt. bags.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE, REFINED.—Spot, £10 10s. per ton d/d station in bags.

SODIUM BICHROMATE CRYSTALS.—3⅜d. per lb. nett d/d U.K. spot. Anhydrous ¾d. per lb. extra.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM CHROMATE.—3½d. per lb. d/d U.K.

SODIUM NITRITE.—Spot, £19 per ton, d/d station in drums.

SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.

SODIUM SILICATE, 140° Tw.—Spot, £8 5s. per ton, d/d station returnable drums.

SODIUM SULPHATE (GLAUBER SALTS).—Spot, £4 2s. 6d. per ton, d/d address in bags.

SODIUM SULPHIDE CONC. SOLID.—Spot, £10 5s. per ton d/d in drums. Crystals—Spot, £7 10s. per ton d/d in sellers' casks.

SODIUM SULPHITE, PEA CRYSTALS.—Spot, £13 10s. per ton, d/d station in kegs Commercial—Spot, £9 per ton, d/d station.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—7d. to 7½d. per lb. Crude 60's, 2s. 5d. April-June, 2s. 4d. July-Dec. per gall.

ACID CRESYLIC 99/100.—2s. 2d. to 2s. 6d. per gall. Pure, 5s. per gall. 97/99.—2s. 1d. to 2s. 2d. per gall. Pale, 95%, 1s. 9d. to 1s. 10d. per gall. 98%, 2s. to 2s. 2d. Dark, 1s. 6d. to 1s. 10d. Refined, 2s. 7d. to 2s. 10d. per gall.

ANTHRACENE.—A quality, 2d. to 2½d. per unit. 40%, £4 10s. per ton.

ANTHRACENE OIL, STRAINED, 1080/1090.—4¾d. to 5¼d. per gall. 1100, 5¼d. to 6d. per gall.; 1110, 6d. to 6½d. per gall. Unstrained (Prices only nominal).

BENZOLE.—Prices at works: Crude, 10d. to 11d. per gall.; Standard Motor, 1s. 5d. to 1s. 6d. per gall.; 90%, 1s. 9d. to 1s. 11d. per gall.; Pure, 1s. 11d. to 2s. 3d. per gall.

TOLUOLE.—90%, 1s. 9d. to 2s. 1d. per gall. Firm. Pure, 1s. 11d. to 2s. 5d. per gall.

XYLOL.—1s. 5d. to 1s. 10d. per gall. Pure, 1s. 8d. to 2s. 1d. per gall.

CREOSOTE.—Cresylic, 20/24%, 6¾d. to 7d. per gall.; Heavy, for Export, 6¼d. to 6⅝d. per gall. Home, 4d. per gall. d/d. Middle oil, 4½d. to 5d. per gall. Standard specification, 3d. to 4d. per gall. Light gravity, 1¼d. to 1⅜d. per gall. ex works. Salty, 7½d. per gall

NAPHTHA.—Crude, 8½d. to 8¾d. per gall. Solvent, 90/160, 1s. 3d. to 1s. 3½d. per gall. Solvent, 95/160, 1s. 4d. to 1s. 6d. per gall. Solvent 90/190, 1s. to 1s. 2½d. per gall.

NAPHTHALENE, CRUDE.—Drained Creosote Salts, £4 10s. to £5 per ton. Whizzed, £4 10s. per ton. Hot pressed, £8 per ton.

NAPHTHALENE.—Crystals, £12 5s. per ton. Purified Crystals, £14 10s. per ton. Flaked, £14 to £15 per ton, according to districts.

PITCH.—Medium soft, 46s. to 47s. 6d. per ton, f.o.b., according to district. Nominal.

PYRIDINE.—90/140, 3s. 9d. to 4s. per gall. 90/160, 3s. 6d.. to 3s. 9d. per gall. 90/180, 1s. 9d. to 2s. 3d. per gall. Heavy prices only nominal.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID BENZOIC.—1s. 8½d. per lb.

ACID GAMMA.—3s. 9d. per lb. 100% d/d buyer's works.

ACID H.—2s. 3d. per lb. 100% d/d buyer's works.

ACID NAPHTHIONIC.—1s. 6d. per lb. 100% d/d buyer's works.

ACID NEVILLE AND WINTHER.—2s. 7d. per lb. 100% d/d buyer's works.

ACID SULPHANILIC.—8½d. per lb. 100% d/d buyer's works.

ANILINE OIL.—8½d. per lb., drums extra, d/d buyer's works.

ANILINE SALTS.—8½d. per lb. d/d buyer's works.

BENZALDEHYDE.—1s. 8d. per lb., packages extra, d/d buyer's works.

BENZIDINE BASE.—2s. 4d. per lb. 100% d/d buyer's works.

BENZOIC ACID.—1s. 8½d. per lb. d/d buyer's works.

o-CRESOL 30/31° C.—£3 1s. 10d. per cwt., in 1 ton lots.

m-CRESOL 98/100%.—2s. 9d. per lb., in ton lots d/d.

p-CRESOL 32/34° C.—2s. per lb., in ton lots d/d.

DICHLORANILINE.—1s. 10d. per lb.

DIMETHYLANILINE.—1s. 9½d. per lb., drums extra d/d buyer's works.

DINITROBENZENE.—8d. per lb.

DINITROCHLORBENZENE.—£74 per ton d/d.

DINITROTOLUENE.—48/50° C., 7½d. per lb.; 66/68° C., 9d. per lb.

DIPHENYLAMINE.—1s. 8d. per lb. d/d buyer's works.

α-NAPHTHOL.—1s. 11d. per lb d/d buyer's works.

β-NAPHTHOL.—£65 per ton in [illegible]n lots, d/d buyer's works.

α-NAPHTHYLAMINE.—1s. per [illegible]/d buyer's works.

β-NAPHTHYLAMINE.—2s. 9d. [illegible] lb. d/d buyer's works.

o-NITRANILINE.—5s. 11d. per lb.

m-NITRANILINE.—2s. 6d. per lb. d/d buyer's works.

p-NITRANILINE.—1s. 8d. per lb. d/d buyer's works.

NITROBENZENE.—6½d. per lb, 5-cwt. lots, drums extra, d/d buyer's works.

NITRONAPHTHALENE.—9d. per lb.

R. SALT.—2s. per lb. 100% d/d buyer's works.

SODIUM NAPHTHIONATE.—1s. 6½d. per lb. 100% d/d buyer's works.

o-TOLUIDINE.—8d. per lb., drums extra, d/d buyer's works.

p-TOLUIDINE.—1s. 9d. per lb. d/d buyer's works.

m-XYLIDINE ACETATE.—3s. 1d. per lb. 100%.

N. W. ACID.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 15s. to £10 5s. per ton. Grey, £16 10s. to £17 10s. per ton. Liquor, 9d. per gall.

ACETONE.—£78 per ton.

CHARCOAL.—£6 to £8 10s. per ton, according to grade and locality.

IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.

WOOD CREOSOTE.—1s. 9d. per gall., unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 8d. to 3s. 11d per gall. Solvent, 4s. to 4s. 3d. per gall.

WOOD TAR.—£3 10s. to £4 10s. per ton

BROWN SUGAR OF LEAD.—£38 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 3d. per lb. according to quality; Crimson, 1s. 3d. to 1s. 5d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 8d. to 1s. 10d. per lb.

BARYTES.—£5 10s. to £7 per ton, according to quality.

CADMIUM SULPHIDE.—5s. to 6s. per lb.

CARBON BISULPHIDE.—£25 to £27 10s. per ton, according to quantity.

CARBON BLACK.—4 1/16d. to 4¼d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£40 to £50 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.

DIPHENYLGUANIDINE.—3s. 6d. per lb.

LITHOPONE, 30%.—£20 to £22 per ton.

SULPHUR.—£9 10s. to £13 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra

SULPHUR PRECIP. B.P.—£55 to £60 per ton.

ZINC SULPHIDE.—8d. to 11d. per lb

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£37 per ton, ex wharf London, barrels free.

ACID, ACETYL SALICYLIC.—2s. 9d. to 2s. 11d. per lb., according to quantity.

ACID, BENZOIC B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. to 1s. 4d. per oz.; 50-oz. lots, 1s. 3d. per oz.

ACID, BORIC B.P.—Crystal, £32 per ton; powder, £36 per ton; For one ton lots and upwards. Packed in 1-cwt. bags carriage paid any station in Great Britain.

ACID, CAMPHORIC.—19s. to 21s. per lb.

ACID, CITRIC.—1s. 7½d. to 1s. 8d. per lb., less 5%.

ACID, GALLIC.—2s. 11d. per lb. for pure crystal, in cwt. lots.

ACID, MOLYBDIC.—5s. 3d. per lb. in ¼ cwt. lots. Packages extra. Special prices for quantities and contracts.

ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d.

ACID, SALICYLIC, B.P. PULV.—1s. 5d. to 1s. 8d. per lb. Technical.—1s. to 1s. 2d. per lb.

ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.

ACID, TARTARIC.—1s. 2¾d. per lb., less 5%.

ACETANILIDE.—1s. 5d. to 1s. 8d. per lb. for quantities.

AMIDOL.—7s. 6d. to 9s. per lb., d/d.

AMIDOPYRIN.—7s. 9d. to 8s. per lb.

AMMONIUM BENZOATE.—3s. 3d. to 3s. 9d. per lb., according to quantity. 18s. per lb. ex Gum.

AMMONIUM CARBONATE B.P.—£36 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated, 1s. per lb.

AMMONIUM MOLYBDATE.—4s. 9d. per lb. in ¼ cwt. lots. Packages extra. Special prices for quantities and contracts.

ATROPHINE SULPHATE.—9s. per oz.

BARBITONE.—5s. 9d. to 6s. per lb.

BENZONAPHTHOL.—3s. to 3s. 3d. per lb. spot.

BISMUTH CARBONATE.—7s. 6d. per lb.

BISMUTH CITRATE.—7s. 6d. per lb.

BISMUTH SALICYLATE.—7s. 3d. per lb.

BISMUTH SUBNITRATE.—6s. 6d. per lb.

BISMUTH NITRATE.—Cryst. 5s. per lb.

BISMUTH OXIDE.—9s. 6d. per lb.

BISMUTH SUBCHLORIDE.—9s. 9d. per lb.

BISMUTH SUBGALLATE.—7s. 3d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.

BISMUTHI ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 11½d. per lb.; 12 W. Qts. 10d. per lb.; 36 W. Qts. 9d. per lb.

BORAX B.P.—Crystal, £21 per ton; powder, £22 per ton; For one ton lots and upwards. Packed in 1-cwt. bags carriage paid any station in Great Britain.

BROMIDES.—Ammonium, 1s. 10d. per lb.; potassium, 1s. 5d. per lb.; granular, 1s. 4¾d. to 1s. 5¼d. per lb.; sodium, 1s. 8d. per lb. Prices for 1 cwt. lots.

CALCIUM LACTATE.—B.P., 1s. 2½d. to 1s. 3d. per lb., in 1-cwt. lots.

CAMPHOR.—Refined flowers, 3s. 3d. to 3s. 4d. per lb., according to quantity; also special contract prices.

CHLORAL HYDRATE.—3s. 1d. to 3s. 4d. per lb.

CHLOROFORM.—2s. 4½d. to 2s. 7½d. per lb., according to quantity.

CREOSOTE CARBONATE.—6s. per lb.

ETHERS.—S.G. ·730—11d. to 1s. per lb., according to quantity; other gravities at proportionate prices.

FORMALDEHYDE, 40%.—37s. per cwt., in barrels ex wharf.

GUAIACOL CARBONATE.—4s. 6d. to 4s. 9d. per lb.

HEXAMINE.—2s. 3d. to 2s. 6d. per lb.

HOMATROPINE HYDROBROMIDE.—30s. per oz.

HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.

HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gall. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 4s. per gall.

HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots.

HYPOPHOSPHITES.—Calcium, 2s. 5d. per lb.; potassium, 2s. 8½d. per lb.; sodium, 2s. 7½d. per lb., in 1 cwt. lots, assorted.

IRON AMMONIUM CITRATE.—B.P., 2s. 8d. to 2s. 9d. per lb. Green, 2s. 10d. to 3s. per lb. U.S.P., 2s. 7d. to 2s. 10d. per lb.

IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.

IRON QUININE CITRATE.—B.P., 8¾d. to 9½d. per oz., according to quantity.

MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.

MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb.

MENTHOL.—A.B.R. recrystallised B.P., 16s. 6d. per lb. net; Synthetic, 9s. 6d. to 11s. 9d. per lb.; Synthetic detached crystals, 9s. 6d. to 11s. per lb., according to quantity; Liquid (95%), 9s. per lb.

MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, crystals, 8s. 4d. to 8s. 5d. per lb., levig., 7s. 10d. to 7s. 11d. per lb.; Corrosive Sublimate, Lump, 6s. 7d. to 6s. 8d. per lb., Powder, 6s. to 6s. 1d. per lb.; White Precipitate, Lump, 6s. 9d. to 6s. 10d. per lb., Powder, 6s. 10d. to 6s. 11d. per lb., Extra Fine, 6s. 11d. to 7s. per lb.; Calomel, 7s. 2d. to 7s. 3d. per lb.; Yellow Oxide, 7s. 8d. to 7s. 9d. per lb.; Persulph, B.P.C., 6s. 11d. to 7s. per lb.; Sulph. nig., 6s. 8d. to 6s. 9d. per lb. Special prices for larger quantities.

METHYL SALICYLATE.—1s. 3d. to 1s. 5d. per lb.

METHYL SULPHONAL.—18s. 6d. to 20s. per lb.

METOL.—9s. to 11s. 6d. per lb. British make.

PARAFORMALDEHYDE.—1s 9d. per lb. for 100% powder.

PARALDEHYDE.—1s. 4d. per lb.

PHENACETIN.—3s. 8½d. to 4s. 1d. per lb.

PHENAZONE.—5s. 11d. to 6s. 1½d. per lb.

PHENOLPHTHALEIN.—5s. 11d. to 6s. 1½d. per lb.

POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—98s. per cwt., less 2½ per cent.

POTASSIUM CITRATE.—B.P.C., 2s. 6d. per lb. in 28 lb. lots. Smaller quantities 1d. per lb. more.

POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.

POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity.

POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included f.o.r. London.

POTASSIUM PERMANGANATE.—B.P. crystals, 5½d per lb., spot.

QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz., bulk in 100 oz. tins

RESORCIN.—2s. 10d. to 3s. per lb., spot.

SACCHARIN.—43s. 6d. per lb.

SALOL.—2s. 3d. to 2s. 6d. per lb.

SODIUM BENZOATE B.P.—1s. 9d. per lb. for 1-cwt. lots.

SODIUM CITRATE, B.P.C., 1911, AND U.S.P. VIII.—2s. 2d. per lb., B.P.C. 1923, and U.S.P. IX—2s. 6d. per lb. Prices for 28 lb. lots. Smaller quantities 1d. per lb. more.

SODIUM FERROCYANIDE.—4d. per lb., carriage paid.

SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.

SODIUM NITROPRUSSIDE.—16s. per lb.

SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—100s. per cwt. Crystals, 5s. per cwt. extra.

SODIUM SALICYLATE.—Powder, 1s. 10d. to 2s. 2d. per lb. Crystal, 1s. 11d. to 2s. 3d. per lb.

SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 1d. per lb.

SODIUM SULPHIDE, ANHYDROUS.—£27 10s. to £29 10s. per ton, according to quantity. Delivered U.K.

SULPHONAL.—9s. 6d. to 10s. per lb.

TARTAR EMETIC, B.P.—Crystal or powder, 1s. 9d. to 1s. 10d. per lb.

THYMOL.—Puriss, 7s. 6d. to 8s. 6d. per lb., according to quantity. Firmer. Natural, 12s. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb.

AUBEPINE (EX ANETHOL).—12s. per lb.

AMYL ACETATE.—2s. 6d. per lb.

AMYL BUTYRATE.—5s. per lb.

AMYL CINNAMIC ALDEHYDE.—12s. per lb.

AMYL SALICYLATE.—3s. per lb.

ANETHOL (M.P. 21/22° C.).—6s. 6d. per lb.

BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.

BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. per lb.

BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb.

BENZYL BENZOATE.—2s. 6d. per lb.

CINNAMIC ALDEHYDE NATURAL.—13s. 3d. per lb.

COUMARIN.—12s. per lb.

CITRONELLOL.—10s. per lb.

CITRAL.—8s. per lb.

ETHYL CINNAMATE.—6s. 6d. per lb.

ETHYL PHTHALATE.—2s. 9d. per lb.

EUGENOL.—9s. 6d. per lb.

GERANIOL (PALMAROSA).—20s. per lb.

GERANIOL.—7s. 6d. to 10s. per lb.

HELIOTROPINE.—6s. 6d. per lb.

ISO EUGENOL.—11s. 9d. per lb.

PHENYL ETHYL ACETATE.—11s. per lb.

PHENYL ETHYL ALCOHOL.—9s. 6d. per lb.

RHODINOL.—46s. per lb.

SAFROL.—2s. per lb.

TERPINEOL.—1s. 6d. per lb.

VANILLIN, EX CLOVE OIL.—13s. 6d. to 15s. per lb. Ex Guaiacol, 12s. 6d. to 13s. 9d. per lb.

Essential Oils

ALMOND OIL.—Foreign S.P.A., 10s. per lb.

ANISE OIL.—4s. 3d. per lb.

BERGAMOT OIL.—10s. 9d per lb.

BOURBON GERANIUM OIL.—18s. per lb.

CAMPHOR OIL, WHITE.—16os. per lb.

CANANGA.—Java, 9s. 6d. per lb.

CASSIA OIL, 80/85%.—4s. 9d. per lb.

CINNAMON OIL LEAF.—7s. 9d. per oz.

CITRONELLA OIL.—Java, 2s. 8d. per lb., c.i.f. U.K. port; pure, Ceylon, 2s. 8d. per lb.

CLOVE OIL (90/92%).—7s. per lb.

EUCALYPTUS OIL, AUSTRALIAN, B.P. 70/75%.—1s. 9d. per lb.

LAVENDER OIL.—Mont Blanc, 38/40%, 11s. 6d. per lb.

LEMON OIL.—5s. per lb.

LEMONGRASS OIL.—4s. per lb.

ORANGE, SWEET.—11s. 3d. per lb.

PEPPERMINT.—Wayne County, 14s. per lb.; Japanese, 6s. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

London, May 1, 1930.

LITTLE improvement in the demand for general chemicals can be reported during the current week, buyers mainly confining their demands for near requirements. Prices, however, continue in the main firm, and it is expected the demand will gradually broaden now that the majority of the consumers have re-opened from the recent holiday.

General Chemicals

ACETONE.—Is firm at £71 10s. to £80 per ton, according to quantity, with the product in regular request.

ACID ACETIC.—There has been rather a better demand for this acid recently, and the price is firm at £36 10s. for technical 80%, and £37 10s. for 80% edible.

ACID CITRIC.—There is only a small inquiry, but the price shows no further weakening at about 1s. 9d. per lb., less 5%.

ACID LACTIC.—Is in steady call, with the market firm at £43 per ton for 50% by weight pale quality.

ACID OXALIC.—The market has met with a fair amount of business, with prices unchanged at £30 7s. 6d. per ton to £32 per ton, according to quantity.

ALUMINA SULPHATE.—Conditions in this market remain firm at £8 to £8 15s. per ton for 17/18% iron-free quality, with a fair demand.

ARSENIC.—Inactive at about £15 15s. per ton, free on rails at the mines.

CREAM OF TARTAR.—There is a slightly better demand, and price is unchanged at about 97s. 6d. per cwt.

COPPER SULPHATE.—This is only a nominal market, and business is a matter of negotiation.

FORMALDEHYDE.—Is again steady at about £33 10s. per ton, with a fair amount of demand.

LEAD ACETATE.—Only in small demand at about £41 5s. per ton for white and £40 5s. per ton for brown.

LEAD NITRATE.—In small request at about £33 per ton.

LITHOPONE.—In steady request at £19 15s. per ton to £23 per ton, according to grade and quantity.

CARBONATE OF POTASH.—Steady at £27 per ton for 96/98%.

PERMANGANATE OF POTASH.—Fairly satisfactory demand at the firm rate of 5½d. per lb. for B.P. quality.

SODIUM BICHROMATE.—Firm at 3⅝d., and in good request.

SODIUM HYPOSULPHITE PHOTOGRAPHIC CRYSTALS.—The demand is increasing at the firm price of £14 15s. per ton, with commercial at £8 10s. to £9 per ton.

SULPHIDE OF SODA.—Steady at unchanged rates.

TARTAR EMETIC.—In small request at about 11d. per lb.

ZINC SULPHATE.—Unchanged at about £13 per ton.

Coal Tar Products

The market for coal tar products is still unchanged, and very little activity is shown.

MOTOR BENZOL.—Is unchanged at about 1s. 5½d. to 1s. 6d. per gallon f.o.r.

SOLVENT NAPHTHA.—Is quoted at about 1s. 2½d. to 1s. 3d. per gallon f.o.r.

HEAVY NAPHTHA.—Remains at about 1s. 11d. per gallon f.o.r.

CREOSOTE OIL.—Is unchanged at 3d. to 3½d. per gallon f.o.r. in the North, and at 4d. to 4½d. per gallon in London.

CRESYLIC ACID.—Is quoted at 2s. per gallon for the 98/100% quality, and at 1s. 10d. per gallon ex works for the dark quality 95/97%.

NAPHTHALENES.—The firelighter quality is quoted at £3 10s. to £3 15s. per ton, the 74/76 quality at £4 to £4 5s. per ton, and the 76/78 quality at about £5 per ton.

PITCH.—There is little business for prompt delivery, and the price remains nominally at 45s. to 47s. 6d. per ton f.o.b. East Coast port.

THE following additional prices have been received :—

Carbolic Acid.—Quiet, but prices seem to be maintained at 7d. to 7½d. per lb.

Acetyl Salicylic Acid, B.P.—No change.

Methyl Salicylate.—1s. 3d. to 1s. 5d. per lb., according to quantity.

Cresylic Acid Pale, 98%.—Offered at 2s. to 2s. 2d. Refined, 2s. 7d. to 2s. 10d.

Sodium Salicylate, B.P.—Granular, 1s. 11d. to 2s. 3d. Powder, 1s. 10d. to 2s. 2d.

Saccharin.—43s. 6d. per lb., duty paid.

Vanillin, 100%, from Clove Oil.—Quoted at 14s. in 1 cwt. lots. Smaller quantities, 14s. 3d. to 14s. 6d. per lb.

Nitrogen Fertilisers Market

Sulphate of Ammonia.—Export.—The market for export is very quiet and prices remain steady at £7 15s. to £7 15s. 6d. per ton, f.o.b. U.K. port, in single bags. *Home.*—It is understood that merchants are handling a fair volume of orders but that the purchasing has not been so heavy as last year. Scale prices remain in operation until June 30.

Nitrate of Soda.—The consumption during the month of April seems to be about the same as it was last year.

Scottish Coal Tar Products

ORDERS for all products are still very scarce, and prices of cresylic acid and of tar are weaker than hitherto. Quotations for other items remain fairly steady.

Cresylic Acid.—There has been a slight easing in quotations, but stocks continue low. Pale, 99/100%, 1s. 10½d. to 1s. 11½d. per gallon; pale, 97/99%, 1s. 9½d. to 1s. 10½d. per gallon; dark, 97/99%, 1s. 8½d. to 1s. 9½d. per gallon; high boiling acid, 1s. 9d. to 1s. 11d. per gallon; all f.o.r. works.

Carbolic Sixties.—This market is firm at 2s. 4d. to 2s. 6d. per gallon for ordinary quality. Production is on a small scale in this area.

Creosote Oil is unchanged with very little business passing. Specification oil, 3d. to 3½d. per gallon; gas works ordinary, 2⅝d. to 3⅜d. per gallon; washed oil, 3d. to 3½d. per gallon; all at makers' works.

Coal Tar Pitch.—Quotations for next season are on the same level as to-day's current value. The export price is 47s. 6d. per ton, f.a.s. Glasgow, and home price is about 50s. to 52s. 6d. per ton, f.o.r. works.

Blast Furnace Pitch.—Orders for this product do not cope with the production. Controlled prices remain at 30s. per ton, f.o.r. works, for home, and 35s. per ton, f.a.s. Glasgow, for export.

Refined Coal Tar is easier in tone, and quantities are on offer at about 3½d. to 4d. per gallon filled into buyers' packages, f.o.r. works.

Blast Furnace Tar is without interest at 2¾d. per gallon.

Crude Naphtha is being produced in greater quantities, and price is easy at 4d. to 4½d. per gallon, ex works.

Water White Products.—90/160 solvent and 90/190 heavy naphthas are easy at 1s. 2d. to 1s. 3d. per gallon and 1s. to 1s. 1d. per gallon respectively, but motor benzol is in good demand at 1s. 6¼d. to 1s. 6¾d. per gallon, all f.o.r. makers' works.

South Wales By-Products

SOUTH Wales by-product activities remain unsatisfactory. The demand for most products is slow and sporadic and there are no indications of an early improvement. With patent fuel manufacturers buying very little, pitch is inactive and on offer at about 45s. per ton delivered. Supplies are well in excess of demand. Sulphate of ammonia, which has had a steady, if moderate, call during recent weeks, has slumped, mainly because of the agricultural depression. Refined tars have only a moderate call, but prices for coke-oven and gasworks tar are unchanged. Heavy naphtha has scarcely any demand with values unchanged, but solvent has a small, steady call. Creosote remains quiet, but there is a slightly better demand for motor benzol. Patent fuel and coke exports are moderate. Patent fuel prices for export are :—22s. to 22s. 6d., ex ship Cardiff; 21s., ex ship Newport; and 20s. to 21s., ex ship Swansea. Coke prices for export at all South Wales ports are unchanged.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing this firm's independent and impartial opinions.*

Glasgow, April 30, 1930.

IN our last report we anticipated an improvement during the current week in the Scottish heavy chemical market, but up to the present this has not materialised. Business on the whole has been very quiet, and it is to be hoped that the forthcoming week will show a change. Prices still remain steady.

Industrial Chemicals

ACETONE, B.G.S.—£71 10s. to £80 per ton, ex wharf, according to quantity. Inquiry remains satisfactory.

ACID ACETIC.—This material is still scarce for immediate supply, but prices remain unchanged as follows:—98/100% glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports. 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystals, granulated or small flakes, £30 per ton; powder, £32 per ton, packed in bags, carriage paid U.K. stations. There are a few fairly cheap offers made from the Continent.

ACID CARBOLIC, ICE CRYSTALS.—Quoted 8d. per lb., delivered.

ACID CITRIC, B.P. CRYSTALS.—Quoted 2s. per lb., less 5% ex store, prompt delivery. Rather cheaper offers for early delivery from the Continent.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy; dearsenicated quality, 5s. 6d. per carboy, ex works, full wagon loads.

ACID NITRIC, 80° QUALITY.—£24 10s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—On offer at same price—viz., 3¼d. per lb., ex store. Offered from the Continent at 3¼d. per lb., ex wharf.

ACID SULPHURIC.—£2 15s. per ton, ex works, for 144° quality, £5 15s. per ton for 168°. Dearsenicated quality 20s. per ton extra.

ACID TARTARIC, B.P. CRYSTALS.—Quoted 1s. 4d. per lb., less 5%, ex wharf. On offer for prompt delivery from the Continent at 1s. 4½d. per lb., less 5% ex wharf.

ALUMINA SULPHATE.—Quoted at round about £7 10s. per ton, ex store.

ALUM, LUMP POTASH.—Now quoted £8 7s. 6d. per ton, c.i.f. U.K. ports. Crystal meal about 2s. 6d. per ton less.

AMMONIA, ANHYDROUS.—Quoted 7½d. per lb., carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump quality quoted £36 per ton, powdered, £38 per ton, packed in 5 cwt. casks, delivered U.K. stations or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered, according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture, quoted £21 to £22 per ton, ex station. Fine white crystals offered from the Continent at about £17 5s. per ton, c.i.f. U.K. ports.

ANTIMONY OXIDE.—Rather easier, and spot material now obtainable at round about £34 per ton, ex wharf. On offer for prompt shipment from China at about £30 per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Quoted £18 per ton, ex wharf, prompt dispatch from mines. Spot material still on offer at £19 15s. per ton, ex store.

BARIUM CHLORIDE.—In good demand and price about £11 per ton, c.i.f. U.K. ports. For Continental material our price would be £10 per ton, f.o.b. Antwerp or Rotterdam.

BLEACHING POWDER.—British manufacturers' contract price to consumers unchanged at £6 12s. 6d. per ton, delivered in minimum 4-ton lots. Continental now offered at about the same figure.

CALCIUM CHLORIDE.—Remains unchanged. British manufacturers' price, £4 15s. per ton to £5 5s. per ton, according to quantity and point of delivery. Continental material on offer at £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or £4 12s. 6d. per ton, f.o.b. U.K. ports.

FORMALDEHYDE, 40%.—Now quoted £35 per ton, ex store. Continental material now on offer at about £34 per ton, ex wharf.

GLAUBER SALTS.—English material quoted £4 10s. per ton, ex station. Continental on offer at about £3 5s. per ton, ex wharf.

LEAD, RED.—Price now £37 10s. per ton, delivered buyer's works.

LEAD, WHITE.—Quoted £37 10s. per ton, c.i.f. U.K. ports.

LEAD ACETATE.—White crystals quoted round about £39 to £40 per ton, ex wharf. Brown on offer at about £2 per ton less.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store. in moderate demand.

METHYLATED SPIRIT.—Industrial quality 64 O.P. quoted 1s. 4d. per gallon, less 2½% delivered.

POTASSIUM BICHROMATE.—Quoted 4⅜d. per lb., delivered U.K. or c.i.f. Irish ports, with an allowance for contracts.

POTASSIUM CARBONATE.—Spot material on offer at £26 10s. per ton, ex store. Offered from the Continent at £25 5s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 99¾/100%.—Powder quoted £25 10s. per ton, ex wharf. Crystals 30s. per ton extra.

POTASSIUM NITRATE.—Refined granulated quality quoted £19 2s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 5¼d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Spot material quoted at 7d. per lb., ex store. Offered for prompt delivery from the Continent at about 6¾d. per lb., ex wharf.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station. M.W. quality 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3⅝d. per lb., delivered buyers' premises, with concession for contracts.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality 27s. 6d. per ton extra. Light soda ash £7 13s. per ton, ex quay, minimum 4-ton lots, with various reductions for contracts.

SODIUM CAUSTIC.—Powdered, 98/99%, £17 10s. per ton, in drums, £18 15s. per ton in casks. Solid, 76/77%, £14 10s. per ton in drums; £14 12s. 6d. per ton for 70/72% in drums, all carriage paid buyers' stations, minimum 4-ton lots. For contracts 10s. per ton less.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum 4-ton lots. Pea crystals on offer at £14 15s. per ton, ex station, minimum 4-ton lots. Prices for this year unchanged.

SODIUM NITRATE.—Chilean producers are now offering at £10 2s. per ton, carriage paid buyers' sidings, miminum 5-ton lots, but demand in meantime is small.

SODIUM PRUSSIATE.—Quoted 5¼d. per lb., ex store. On offer at 5d. per lb., ex wharf, to come forward.

SODIUM SULPHATE (SALTCAKE).—Prices 55s. per ton, ex works; 57s. 6d. per ton, delivered, for unground quality. Ground quality 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices for home consumption. Solid, 60/62%, £9 15s. Broken, 60/62%, £10 15s. per ton. Crystals, 30/32%, £7 17s. 6d. per ton, all delivered buyers' works on contract, minimum 4-ton lots. Special prices for some consumers. Spot material 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 10s. per ton; rock, £9 5s. per ton; ground American, £9 5s. per ton, ex store.

ZINC CHLORIDE, 98%.—British material offered at round about £20 per ton, f.o.b. U.K. ports.

ZINC SULPHATE.—Quoted £10 per ton, ex wharf.

NOTE.—The above prices are for bulk business, and are not to be taken as applicable to small parcels.

Czechoslovak Consumption of Fertilisers

ESTIMATES made by the State Statistical Office of Czechoslovakia for the fiscal year ended April 30, 1929, show that the total consumption of fertilisers amounted to 718,421 metric tons, 46 per cent. of which was domestically produced. The following figures show the total consumption and the domestic production of the various fertilisers in Czechoslovakia:

Kinds of Fertilisers.	Domestic production. Metric tons	Total consumption. Metric tons
Ammonium sulphate	70,370	55,638
Chilean nitrate	—	40,435
Calcium nitrate	—	11,573
Cyanamide	27,039	37,406
Phosphates	225,384	244,801
Basic phosphate slag	155,015	187,226
Bone meal	11,358	11,061
Kainite	—	46,040
18 per cent.—24 per cent. potash salts	—	2,946
38 per cent.—44 per cent. potash salts	—	70,819
Other salts	—	992
Animal scraps	1,483	2,606
Other fertilisers	—	78
Total	490,649	718,421

Manchester Chemical Market

[From Our Own Correspondent.]

Manchester, May 1, 1930.

Signs of recovery on the chemical market from the slackness incidental to the holidays have not been absent this week, and the volume of business seems now to be pretty well back to where it was before Easter. The weak link so far as the chemical trade in this area is concerned is still, of course, the cotton and woollen textile industries. The unsatisfactory conditions in both, coupled, in the case of the latter, with the effect of the labour troubles, continue to exercise an adverse effect on the consumption of a good many lines of chemicals. Under the circumstances, the volume of inquiry and actual business keeps up fairly well.

Heavy Chemicals

For alkali and bicarbonate of soda the demand is relatively steady and values are firm, with current quotations at round £6 and £10 10s. per ton, respectively. Inquiry in the case of sulphide of sodium is only on moderate lines, but prices are well held, the commercial material selling at from £7 15s. to £8 per ton and the 60–65 per cent. concentrated solid quality at about £9 15s. A fair demand is reported for bichromate of soda, and quotations are firm on the basis of 3⅜d. per lb., less 1 to 2½ per cent. according to quantity. Caustic soda meets with a quietly steady call, and there has been no change in the range of contract prices, these running from £12 15s. to £14 per ton, according to quality. Chlorate of soda is fairly steady at round £26 per ton, although buying interest in this material is only on quiet lines. There is a moderate inquiry about in the case of saltcake, and at round £3 per ton values are reasonably steady. Hyposulphite of soda is in quiet demand, with the commercial grade on offer at about £9 per ton and the photographic kind from £15 to £15 10s. With regard to phosphate of soda, buying interest in this material during the past week has not been particularly active; the dibasic quality is obtainable at round £11 per ton.

Among the potash products, yellow prussiate finds a fairly steady maket and values in this section are firm at from 6¾d. to 7¼d. per lb., according to quantity. Carbonate of potash and caustic are in moderate request, with the former currently quoted at about £26 5s. per ton and the latter at £31. Chlorate of potash is still rather inactive, but at from £26 to £28 per ton, according to quantity, values keep up. A fair business is reported in the case of bichromate of potash, and prices of this are fully maintained on the basis of 4⅜d. per lb., less discounts of 1 to 2½ per cent. Permanganate of potash is quiet, but reasonably steady at about 5¼d. per lb. for the commercial grade and 5½d. for the B.P. quality.

Buying interest in the case of sulphate of copper seems to be rather slow pending price developments, and values at the moment are largely nominal at round £25 per ton, f.o.b. The demand for arsenic is on a somewhat quiet scale, with offers of white powdered, Cornish makes, at £15 15s. per ton at the mines. The acetates of lime are only in moderate inquiry and perhaps not too firm; the grey material is quoted at round £15 per ton and the brown at £7 5s. A quiet business is going through in the lead compounds, with nitrate on offer at from £31 to £32 per ton, and white and brown acetate at £38 and £37 per ton, respectively.

Acids and Tar Products

Moderate sales of oxalic acid are being made on the basis of £1 12s. to £1 12s. 6d. per cwt., ex store. Tartaric acid is a relatively slow market at the moment, but at about 1s. 3d. per lb. there has been little further change in prices. Citric acid is quiet and keen selling pressure is influencing quotations for this material, an average price to-day being about 1s. 8½d. per lb. There is a fair trade passing in acetic acid, and values are firm at round £66 per ton for the glacial quality and £36 10s. for the 80 per cent. commercial.

Pitch is quiet but nominally unchanged at 47s. 6d. per ton, f.o.b. The demand for creosote oil is on the slow side both on home and export account, with offers at from about 3¾d. to 4½d. per gallon, naked, according to quality. There is only a quiet business going through in carbolic acid, but prices are maintained at round 7¼d. per lb. for the crystals and 2s. 5d. per gallon, naked, for the crude 60's. Solvent naphtha is steady and in moderate request at about 1s. 2¾d. per gallon, naked.

Company News

American Smelting and Refining Co.—The usual quarterly dividend of $1 per share on the common stock is announced, payable on May 1.

Nitrate Railways Co., Ltd.—The directors recommend, subject to final audit of the accounts, a final dividend of 4 per cent., *i.e.*, 8s. per share on the ordinary (unconverted) shares, making a total dividend for the year 1929 of 6 per cent., and a final dividend of 4 per cent., *i.e.*, 8s. per share on the preferred converted ordinary shares, making 6 per cent. These dividends are the same as for 1928.

United Water Softeners.—The accounts for 1929 show a disposable balance of £17,108, from which has to be deducted preference dividend of £2,620, leaving £14,488. These figures have been arrived at after making various deductions and after eliminating capital loss on sale of freehold property at Brentford. The directors recommend a dividend on the ordinary shares of 2s. (10 per cent.), tax free, carrying forward £4,488.

Magadi Soda Co.—The balance of profit for the year 1929, after providing £14,792 for obsolescence and £29,128 for debenture interest, is £16,086, which, with the balance brought forward, £24,505, makes £40,591. After deducting gross dividends on the preference shares, a balance remains to be carried forward of £7,762. The directors recommend for confirmation the dividends already paid as above, and they also recommend that no dividends be paid on the preferred ordinary and ordinary shares for the year under review. Report states that the decreased profit for the year as compared with last year is due primarily to trade depression in overseas markets. This has led to reduced output, with a corresponding increase in costs.

Tarapaca and Tocopilla Nitrate Co.—The directors' report for the year ended December 31, 1929, states that the year's trading resulted in a gross profit, including interest and transfer fees, of £118,783, and, after deducting London expenses, Iquique expenses, debenture interest, discount, interest, etc., Chilean income tax and "Virginia" and "Santa Ana" stoppage expenses, absorbing £45,853, a net profit remains of £72,930 (against £74,740 for 1928). With brought in of £63,858, and plus provisions made in previous years for insurance on nitrate afloat and British income tax, now no longer required for these purposes, £11,321, there is a total of £148,110. Dividends have been paid corresponding to 1928 (less 4s. in the £ tax), £32,000; amount transferred to 6½ per cent. first mortgage debenture sinking Fund, £34,000; leaving available balance of £82,110. The directors recommend a dividend of 5 per cent., absorbing £50,000, plus 6 per cent., Chilean income tax on dividend, £3,191, carrying forward £28,918.

Bideford Black, Ltd.—The first annual ordinary general meeting was held in London, on April 23. Mr. A. L. Brodrick, who presided, stated that the object of the company, which was formed twelve months ago, was to mine, refine and sell mineral black, of which there is a unique and extensive deposit at Bideford. They had, therefore, set out to establish a new industry in this country, and in the process to assemble a plant which was a novel combination. They had, of course, had their share of teething troubles, but there was no single feature of the operations which caused anxiety, and they were more than ever convinced of the ultimate and inevitable success of the enterprise. Dealing with the items in the balance sheet, he said that on the Assets side Freehold Property and Mining Rights stood at £64,972; Plant, Machinery, Buildings and Mining Equipment, £17,041; Development Account, £4,425; Furniture, Fixtures and Survey Instruments, £309; Preliminary Expenses, £3,804; General Stores and Stocks on Hand, £1,465; Sundry Debtors and Payments in Advance, £1,407; Loan to Bideford and District Electric Supply Co., Ltd., £5,500. On the Liabilities side, he stated that the item of Sundry Creditors £2,467 was in respect of ordinary trading liabilities, and included £434 Directors' Fees, which had not yet been drawn. At an extraordinary general meeting which followed, a resolution was carried unanimously increasing the capital of the company to £130,000 by the creation of 120,000 additional ordinary shares of 5s. each, ranking for dividend and in all other respects *pari passu* with the existing 400,000 ordinary shares of 5s. each of the company.

English China Clays, Ltd.

A Satisfactory Year

MR. R. MARTIN, chairman and managing director of English China Clays, Ltd., who presided at the eleventh annual meeting of the company, in London, on Tuesday, stated that the result for the past year, which was eminently satisfactory, had been made possible by the improvement in trade demand which occurred during the year, by the intensive work put in by their sales organisation, by the reduction in cost of production and by the loyal co-operation and good service rendered by their employees and office staff. He stated that they now held the whole of the share capital of 10 producing companies and two sales companies. The total output of the trade for 1929 amounted to 887,579 tons of china clay, and 50,609 tons of china stone, being 69,815 tons and 2,500 tons respectively in excess of the figures for the preceding year.

The interest shown by consumers in their colloidal clay specialities, "Stockalite" and "Devolite," was rapidly extending over a wider field, and in order to meet the increasing demand they had found it necessary to construct additional vats and another drying kiln. Ordinary china clay had been used in the rubber, paint, and toilet trades for many years, but for a variety of reasons it did not give complete satisfaction. To a certain extent ordinary china clay became considered as too irregular in quality and physical properties to warrant constant use in these particular industries. After many laboratory experiments and much research, a special process of treatment of one of their best and purest clays was adopted, and in consequence they were able to place on the market "Stockalite" and "Devolite." These clays were extremely colloidal and had all the physical properties required in china clay for use in these industries, and they anticipated a great future for them. Other interesting developments of the business transacted during the last 12 months were those of ball clay, felspar, and other materials. The shipments of the trade for the first three months of the present year were in excess of those for 1929 by some 30,000 tons, and the orders on their own books were considerably larger, but just recently a distinct dullness had become apparent in both the home and the export markets. Nevertheless, he had the feeling that the setback was only of a temporary nature.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

GERMANY.—A firm in Hagen desires to secure the representation of a British manufacturer of first-class crucibles. (Ref. No. 328.)

CHINA.—Agencies for British manufacturers of optical goods, drugs and pharmaceutical products are required by a British subject with 10 years' business experience in China who proposes to establish a manufacturers' agency business with headquarters in Shanghai and to travel throughout China, Hong Kong and the Straits Settlements. (Ref. No. 334.)

SPAIN.—A firm of good standing in Barcelona wishes to obtain the representation of British manufacturers of pharmaceutical specialities. (Ref. No. 333.)

Tariff Changes

BOLIVIA.—The sanction of the Ministry of Finance and Industry must be obtained before apparatus, machinery, tools and accessories destined for the manufacture and distillation of alcohol, spirits, and spirituous liquors may be imported.

VENEZUELA.—A recent Ministerial Decree fixes the Customs duty on borax imported into Venezuela as follows: Borax, refined or granulated, for glazing—Class 1 (B 0·05 per kilog. gross); borax, in crystals or in powder—Class 3 (B 0·25 per kilog. gross). The duties are the basic Tariff duties, and do not include the general surtaxes amounting to 56½ per cent. of the basic duty.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgment

[*NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.*]

NOBLE, William Desmond, 11, Warwick Road, Thorpe Bay, and 140, Southchurch Road, Southend, manufacturing chemist. (C.C., 3/5/30) £7 10s. 9d. February 25.

Mortgages and Charges

[*NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.*]

DANUBE OIL TRADING CO. OF ROUMANIA, LTD., London, W.C. (M., 3/5/30.) Registered April 17, £238,900 debentures, part of £250,000 and premium of 5 per cent.; general charge. *Nil. October 19, 1929.

HAWLEY AND JOHNSON, LTD., Leicester, dyers. (M., 3/5/30.) Registered April 9, charge to Bank; charged on properties in Leicester. *£3,500 mortgage. May 3, 1929.

New Company Registered

PIGMENTS, LTD.—Registered April 25. Nominal capital, £15 in 1s. shares. To acquire from S. C. Coles, of Rossall House, Sunbury-on-Thames, the benefit of certain existing inventions relating to the manufacture of white lead, zinc oxide and red lead, and other articles of a similar or analogous character, by certain electrolytic processes. A subscriber: F. Richardson, 33, Amos Street, Moston, Manchester.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us from official sources by Gee and Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the registration of the following Trade Marks can be lodged up to May 23, 1930.

CADMOLITH.

510,182. Class 1. Pigments for paint. The Chemical and Pigment Co. (a corporation organised under the laws of the State of Maryland, United States of America), corner of Madison Avenue, and Brea Road, Cleveland, Ohio, United States of America; manufacturers. February 7, 1930.

VINAROL.

511,069. Class 1. Chemical substances for use as dressing and finishing agents in the manufacture of textile fabrics. I.G. Farbenindustrie Aktien-Gesellschaft (a joint stock company organised under the laws of Germany), Mainzerlandstrasse 28, Frankfort-on-Main, Germany; manufacturers. March 11, 1930.

BOUISOL.

511,257. Class 2. Chemical substances used for agricultural, horticultural, veterinary and sanitary purposes. Einstein's Electro Chemical Process, Limited, Cockpit House, 38, Old Queen Street, Westminster, London, S.W.1; manufacturers. March 18, 1930.